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TO PLAY WITH JOURNEY?

UP TO NOW, YOU'VE HAD IT EASY.

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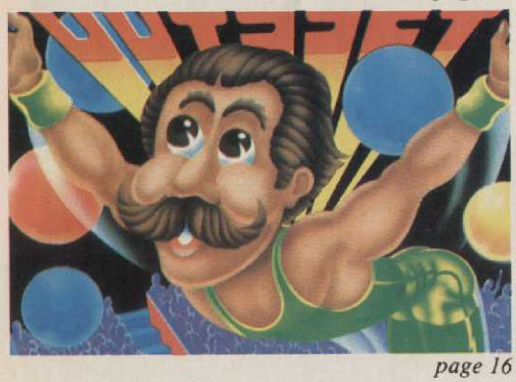

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VIDEO GAMES

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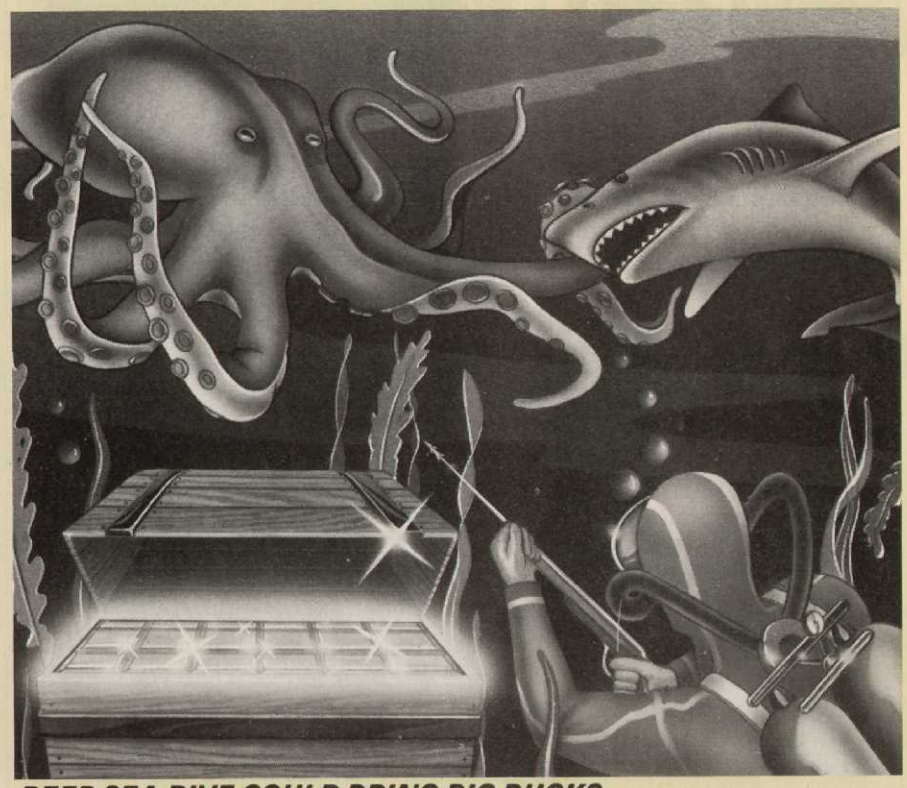

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Entry form can also be obtained by mailing to Entry Request, P.O. Box 4912, Chicago, Illinois 60680.

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HYPERSPACE

Once upon a time, people played video games in arcades. Pac-Man was a six-foot cabinet that gulped down quarters, not a four-ounce cartridge that sold for 30 bucks. How to get rid of the kids? Give 'em your loose change and tell 'em to blow their brains away playing Space Invaders. What was that doing to our children? Who really cared—at least you finally had the house to yourselves.

Well, ColecoVision has changed all of that, and if I was a parent I'd be first to cry above Turbo's din in the living rooms of America: "Here's a quarter, now go play it in the arcade!" But, let me be honest—I'm biased. No matter how good a ColecoVersion of a coin-op game is (and Turbo is pretty darn good—see Dave Smith's review on page 64) I'm going to opt for the real thing, the original, even if it's collecting cobwebs in a half-empty arcade.

The lull in the arcades was certainly predictable, like the one that follows the storm. The two years prior to 1982 was a tornado that produced the kind of windfall profits the industry will probably never see again. But, then, almost without warning, business began to flag. Wha' happened? ColecoVision, for one; a lot of similar games, for two; a reluctance among Pac-addicts to try anything new, for three; the recession (only kidding), for four. Every creative business has its slow periods, but I think it's time already for the coin-op business to snap out of it. Here's how:

Photo by Perry Greenberg

VG editor, Levy and wife at CES soiree.

Start going head-to-head with the consumer electronics industry for the leisure-time quarter again. Make the games so sophisticated that there's no way even Coleco could faithfully copy a game. Develop entirely new hardware systems that allow players to talk back to the machine, perhaps even move objects by touching the screen itself. Dare to be different and you'll leave the army of consumer companies in the dust.

(Where are you Eugene Jarvis, Ed Rotberg, Howie Delman and Dave Nutting, all designers whose games have revolutionized the industry before? Don't tell me you're doing cartridges.)

* * *

Which brings me to *VG* #7 and "America's Newest Games—Q*bert & Joust," a cover story about how two American game companies out-Japaned the Japanese. The story, by Chicago's Neil Tesser, was not easy to get (coin-op people just don't like to talk to the press, we find), so let me give credit where it is due. Another tough nut to crack was Activision's prexie Jim Levy, who amazingly found some spare minutes to talk about his company and the industry at large during the helter-skelter days of CES (see pictorial spread starting on page 39) back in January.

Two random CES notes: Mattel proved with its Burger Time cartridge that you can dupe an arcade game in less than three months (more woes for the coin-op folks), and if all the hardware manufacturers have their way, you *are* going to buy some sort of computer or keyboard attachment in 1983. In the meanwhile, enjoy!

SB

VIDEO GAMES

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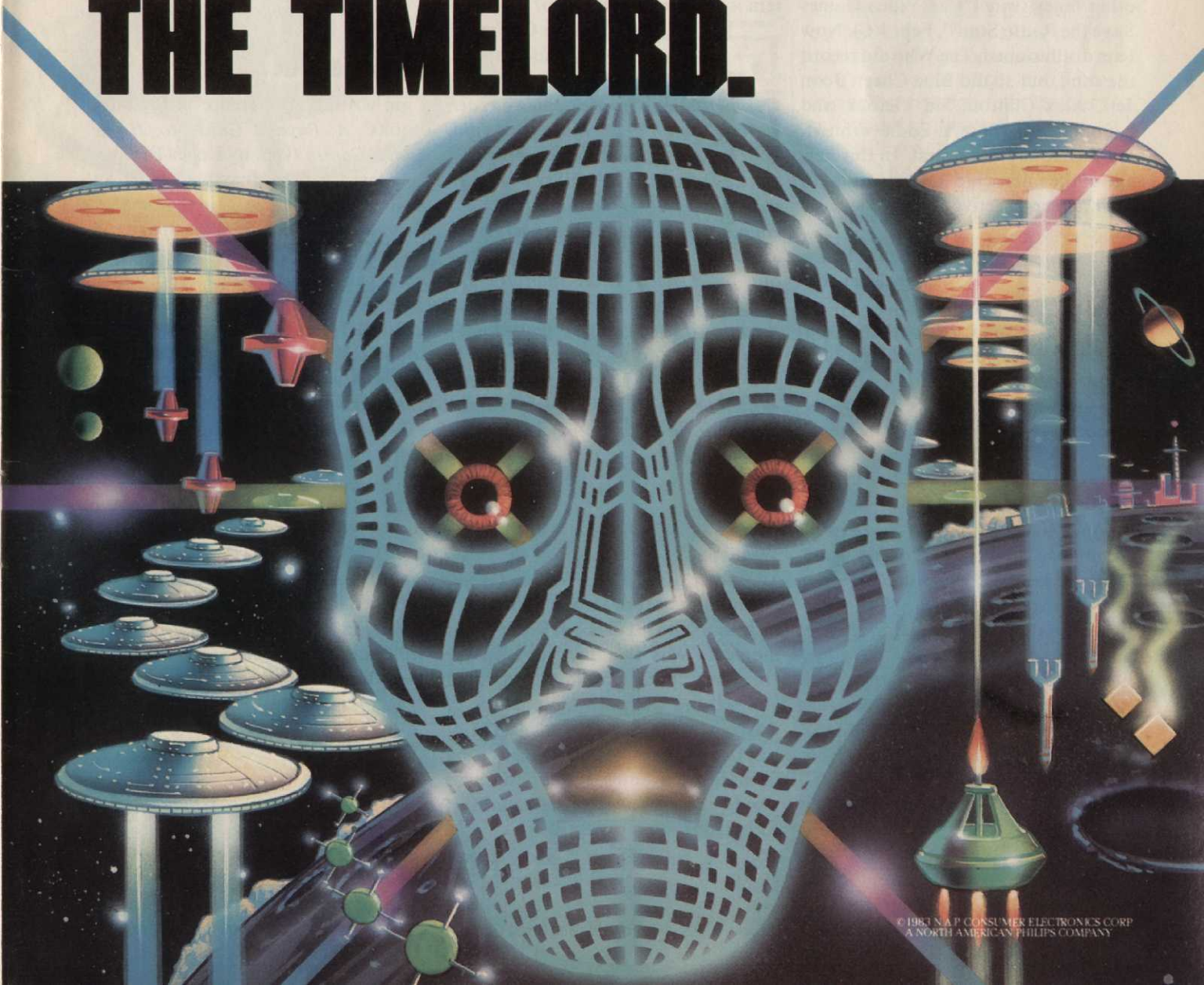

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Double Speak

Who's Fooling Whom?

I figured any magazine that would print "such a horrible concept as 'Microwave the Cat'" and has John Holmstrom as a contributing editor was far too cool not to know that "Summertime Blues" was the work of Eddie Cochran, not The Who or any other limey twits ("Can Video Games Save the Radio Star?", Feb. *VG*). Now I am disillusioned. The Who did record the song, but so did Blue Cheer, Joan Jett, Alex Chilton, Sid Vicious, and countless other losers. Eddie wrote it, did it first and did it best. In this new age of the microchip it is important to maintain perspective and uphold basic values.

Benjamin Lyons
Lancaster, Pa.

Roy Trakin replies: Did Alex Chilton really cover "Summertime Blues"? If I had known that I would've credited him—he could use the publicity. Lo siento . . . really.

Good Timex-ing

I would like to get into game programming, but can't afford a good home or personal computer like the TRS-80, Apple II or Atari 400/800. I have seen the Timex-Sinclair 1000 in ads and on TV. It looks great for $99.95, with an add-on memory, printer and tapes. But can it handle game programming with graphics and will software firms take its programs? How about a Hard Sell on it?

Vincent McKinley
Cleveland, Ohio

No sooner said then done. Dale Archibald reviews the 1000 starting on page 70.—Ed.

Decisions, Decisions

I have read the last two Hard Sell articles on ColecoVision and the Atari 5200 and now am aware of the advantages and disadvantages of both. I am a VCS owner and ready to upgrade my system. I was wondering if you could give your opinion on which system is the better of the two?

Bo Coffmann
Addison, Ill.

Good question. Since pricing and each systems' graphics are toss-ups, I think your only consideration at this point can be software availability and compatibility. Coleco no doubt has the edge in these latter two departments. There are at least twice as many carts out for ColecoVision than for the 5200, and then there's the adapter module. But as long as you already own a VCS (do you plan to sell it?), you probably don't need the adapter. Which brings us back to new games. Coleco is the clear winner in this area so far.—Ed.

Who's on First?

While playing Galaxian on the Atari 5200 I noticed that a selected ship, when hit, will turn into an Atari logo instead of an explosion, for a brief moment. Was that programmed in? Obviously, it was. But why? Also would you tell me what are the chances of Bosconian (Midway), Galaga (Midway), and Eyes (Rock-Ola) getting licensed by a home system and who would do it? Also, what about Robotron?

Scott Mazak
Newton, N.C.

Since CBS Video Games and Astrocade already have deals with Bally/Midway I would suspect that either or both have first dibs on Galaga and Bosconian, though I've yet to hear any such news. Nothing to report on Eyes. Rumor has it that Atari won the Robotron sweepstakes. Can't wait to blow up a grunt and see an Atari logo in its stead.—Ed.

Roger & Out

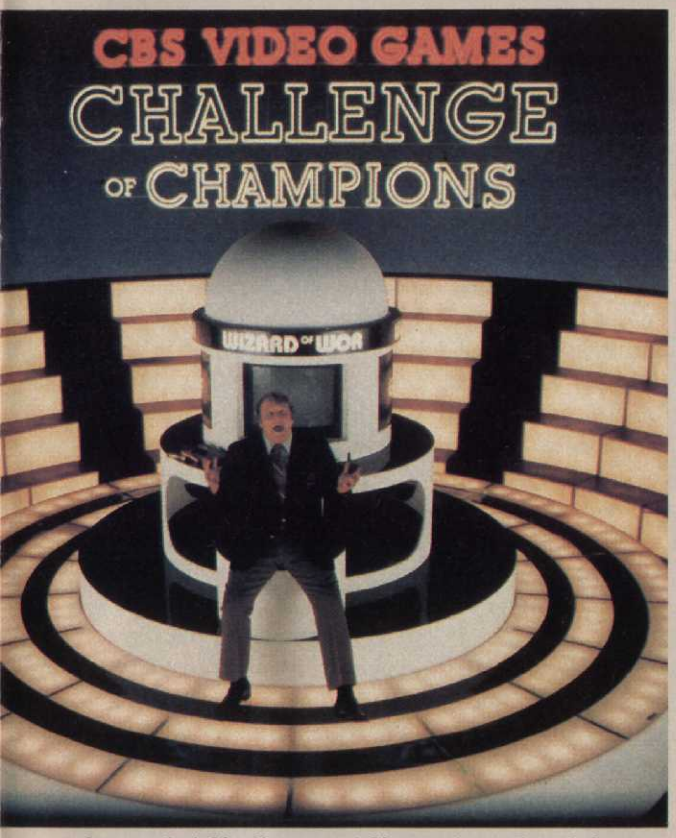
I am writing in reference to Banbury Books' *A Buyer's Guide to Home Video Games 1983*, by Roger Dionne. I ordered a copy for $4.45 from an advertisment on page 27 in the October issue of *VG*. This order was partly in response to the abridged preview of 19 of the games reviewed by Roger Dionne which is found on pages 35-48 in the October issue. I'd like to say that I found this preview to be the best format and writing style I've seen in the video game books I've read. After all this preview, you could probably imagine video fanatics like myself waiting impatiently by the mailbox for a copy of the 250 games reviewed by Roger Dionne in the *Buyer's Guide*. Now imagine my disappointment when what I received in the mail was my returned check and a note: "We regret *A Buyer's Guide to Home Video Games* will not be published." What's up? Does Banbury plan a new title: *Buyer's Guide for 1984?*

David S. Foxx
El Paso, TX.

Very good question. No, Banbury has no plans to publish a "Buyer's Guide for '84, nor will you ever see Roger Dionne's '83 Guide, *at least in the original form. Banbury ran into some*

(Continued on page 81)

Winning at 'Wizard of Wor' and 'Gorf'. By John Madden.



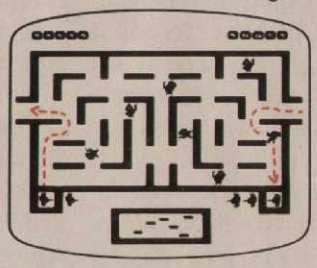
In our first Challenge of Champions, Ray Johnson of Los Angeles defeated Tony Sarkis of New York and David Hayes, a student at Cal Tech, defeated Brian Anderson, a student at MIT.

As the sportscaster for CBS Video Games, I get a chance to watch some of the best players in the country in the "Challenge of Champions."

Here's some of their winning strategies.

Wizard of Wor™: You start with three worriors. The object of this game is to defeat the Wizard, his henchmen and your opponent. This is a game you can play alone, or two can play simultaneously. When two play, you have to worry about getting zapped by your opponent as well as the Wizard, and his gang.

Here's an interesting move you might want to try. Get out into the maze fast, zip out of the escape door, come back in through the opposite side. If you're quick enough, you'll be in perfect position to blitz your opponent's three worriors before they can score any points. The ultimate shutout.



Another variation is to work together. Make a pact not to hit each other (accidents do happen, of course) and go for the record score: 99,500 by Frank Merollo (10/82) and Buz Pryzby (8/82).

'These are two tough games, but I know you're up to the challenge.'

Gorf™ is four boards in one game. Your father will enjoy this game because with a little luck, he'll be able to go through the four boards a couple of times, but after the third level it starts to get faster...and faster. That's when you separate the players from the parents. You start out aggressively and after 10,000 points the bombs and torpedoes start to come hot and heavy, so be prepared to change to a defensive game plan.

Coaching tips: patience

Stick & move

Get position

Hit it high

The record high score is still 32,700 by Horace Eckerstrom (9/82), which gives you some idea of how hard this game is.

Both Wizard of Wor and Gorf are really tough, but I know you're up to the challenge.

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CBS Video Games

Are you up to the challenge?

BLIPS

The Astrocade Question: Sink or Swim?

Though it may seem Astrocade has exhausted its nine lives, the company, like some bedeviled cat, isn't dead yet. Nitron, a Silicon Valley semiconductor manufacturer, may very well come to the ailing game company's rescue. According to Nitron spokesman Rich Forte, "There's a very good chance that we will put up the money to revive Astrocade." Astrocade, which took over rights to the Bally Professional Arcade (aka, Astrocade) in 1980, filed a Chapter XI petition in Federal Court in Dec. '82.

At presstime, the Columbus, Ohio-based firm was seeking out other backers and exploring the possibility of marketing its seven-year-old TV-game system in Europe. In addition, Forte suggested the unit might be totally revamped and reappear on the shelves for about $150—half the current list price. Recently, Astrocade has been selling in some locations for as low as $89.

There was little cause for optimism at the January Consumer Electronics Show (CES), however. The Astrocade booth was deserted except for four arcade-like promotion cabinets that housed an Astrocade and an assortment of games in each one. Vice-President Ray George, the man who had predicted less than a year before that Astrocade would be as "common and generic a name as Xerox" by 1985, was not to be found.

Tom Meeks, Astrocade's product manager, fielded questions from angry retailers and curious reporters. "It's a strange situation," he said. "The president of the company is currently a Federal judge. We can't even give out a sample cartridge without his approval."

The Astrocade story is characterized by public indifference, corporate mismanagement, early technical failures, and the dogged persistence of those who tried so desperately to keep the system alive. Originally, the Professional Arcade was Bally's grand bid to get into the consumer games business in the mid-'70s. "Bally and Atari were running neck and neck (in the arcade games business) and were constantly looking at each other to see how the competition was doing." recalls Dave Nutting, of Dave Nutting Associates, who co-designed the Arcade with Jeff Fredricksen. When Bally found out that Atari was developing a programmable TV-game system (the Video Computer System or VCS), executives at the coin machine company decided "they had to be in it too," Nutting says.

Nutting's master plan was to "put a computer in everybody's home." Once the system, which utilized the Z-80 microprocessor (the same chip Nutting was using to design arcade games), was in enough homes, a Basic programming cartridge would be released, followed by an "add-under" keyboard in the form of a Z-Grass computer.

JS&A, a leading mail-order

Illustration by Cary Henrie

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marketer of specialty electronics, took out full-page ads in trade publications in 1977, announcing that the computer age had arrived. The Bally Professional Arcade was "the secret of the computer revolution," JS&A hyped, a device that could play games as well as be expanded into a home computer. The mail-order house went as far as to devote five pages in its catalog to the virtues of the system.

Problems began shortly after the Arcade's introduction, however. Units promised in September were not delivered until five months later, and a majority of them were defective. In April 1978, Bally shipped supposedly "perfected" units that were "still not right," according to JS&A's Joseph Sugarman. By 1979, discouraged by reliability problems, limited software, and doubts about whether the add-under would ever be marketed, JS&A cancelled all orders and offered to buy back the units its customers had purchased.

"We could have sold 30,000 Arcades," says Sugarman. "Instead, we lost thousands of dollars. This could have killed a smaller company."

Why didn't Bally take better care of its customers? Dave Nutting cites several reasons. "Bally is a commercial game manufacturer. They build a game, test it, ship it. The arcade owner opens the box, plugs in the game and tests it. If it doesn't work, he gets out the manual, pokes it a few times and gets it going. The consumer, on the other hand, gets the unit and plugs it in: If it doesn't work, he sends it back."

In other words, Bally was not ready for the world of consumer marketing. "They tried to market the Arcade like it was a radio or TV," Nutting explains, "not as a whole new product." As might be expected, most of Bally's energy at the time focused on launching new casino operations; hence, its new consumer products took a back seat. "They got discouraged," he says, "and wished it would all go away."

Bally got its wish by selling the Arcade to Astrovision for $2.3 million in August 1980. The company immediately rechristened the system "Astro Professional Arcade." As part of the agreement, Bally would provide engineering support (ie, Dave Nutting and Bob Ogden, a Dave Nutting Associates alumni), plus the rights to such Bally/Midway coin-op games as Wizard of Wor, Space Zap, and Galaxian.

Photo by Perry Greenberg

Astrocade's no-show at CES: Hey, buddy, can you spare a quarter?

Promising an "explosive 1,000 percent growth," Ray George began gearing up for $10 million in sales for 1981, $100 million for '82 and $1 billion by '85. New distributorships were assigned and design began on an extensive new line of software. When George's bullish rhetoric was realized at the end of '81—actually, the figure was about $9 million—and the company unveiled the Z-Grass machine at the January '82 CES, people finally began to think that Astrovision might be for real.

Early last year, Astrovision made two major announcements: it would be changing its name to Astrocade, and Nitron, the company's chip supplier, would begin designing cartridges for the system. The contract was for a sum of $108 million through 1983. Unfortunately for Astrocade, this was the last truly positive news to come out of its Ohio offices.

Although Astrocade in-

Vid-Custer's Last Stand

Anti-porn and Native American activists—not to mention "adult" video game players—won't have Custer's Revenge to kick around anymore. You remember Custer's Revenge: the game from American Multiple Industries (AMI) in which General George eluded cacti and a hail of Injun arrows in order to plant his Little Big Horn into a tied-to-a-stake but apparently willing redskin squaw. The game set off a controversy when AMI introduced it last fall.

Well, shortly after 1982 turned into 1983, Hong Kong games manufacturer JHM Ltd.—maker of Custer's as well as AMI's other "adult" cartridges, Beat 'Em & Eat 'Em and Bachelor Party—transferred all American distribution rights for the games from AMI to GameSource, a California consortium of veteran adult-video cassette distributors. Simultaneously, GameSource announced the discontinuation of Custer's Revenge, which never really went on the market.

"We got thousands of letters about Custer's Revenge," explains GameSource rep Richard Lewis, formerly a spokesperson for AMI. "They were all from women's groups or Moral Majority types protesting the game. We still maintain that the game didn't really depict anything like rape or racism, but since the game already had such a stigma in the public eye due to all the protest, it just seemed senseless to keep trying to push it. We're 100 percent in favor of good sexual fun between consenting video images."

The GameSource cartridges will now be distrib-

Illustration by Dana Ventura

Though Custer's has been discontinued, the X-rated game trend will go on.

uted under the name "Play-Around." Joining Beat 'Em & Eat 'Em and Bachelor Party will be 10 other new games, including Bachelorette Party (the distaff version of Bachelor Party) and Philly Flasher (which Lewis—perhaps fearing more protests—refused to describe). Lewis did say that the new games will have "much better graphics, and will be more challenging and intricate. We're designing them more for real video game players, so they'll stay interested once they get past the 'dirty joke' aspect of the games."

GameSource plans to market its games in "child-resistant" packages: Each box will come complete with a warning as well as locks and keys to keep the cartridges out of the hands of the little ones. Another video game first—"two-in-one" cartridges with openings at both ends for two different games—will also be marketed by GameSource. This should help guarantee some sort of value for the rather high priced ($50-$60) PlayAround cartridges.

AMI President Stuart Kesten has maintained a financial share—but no controlling interest—in GameSource. Meanwhile, AMI's First Amendment suit against New York's Suffolk County legislature—which last November passed an ordinance banning the sale or use of Custer's Revenge and Firebug (MUSE's maze game) because they "promoted and made acceptable the pursuit of destructive, anti-social activities"—has been dropped, now that Custer's Revenge is gone and Firebug has been altered to seem less like an invitation to arson. —*Michael Shore*

No Pepsi! Coke Video Game

Thirsty for video games? Have a Coke! At least that's what the Coca-Cola Co. hopes you'll do when it releases a new line of video vending machines some time this year. The machines have one of two video games displayed above the coin slot. The purchaser activates the game by pressing a button after buying a soda.

In Catch-A-Coke, a tree-perched monkey throws Coke cans down at a delivery man (so that's what Donkey Kong does when he isn't kidnapping blondes) whom you move with buttons across the 6 x 4-inch screen. The object is to catch as many cans as possible for points (the monkey laughs when you miss any). Like its less hospitable arcade counterparts, the screen displays your score and the day's high score.

A game lasts from 10 to 20 seconds, depending on the time limit set by the lessee of the machine. Skill levels—amateur, average, expert—can also be preset.

While Coca-Cola's new gimmick won't have people lining up quarters on Coke machines, the company feels video games' "tremendous attraction" can be used as a "sales tool" according to spokesperson Dolores Sanchez. After all, even the most fanatical gamers have to eat and drink like the rest of us, and now they barely have to stop playing to do the latter.

—*Michael Fine*

sisted that two cartridges a month would be released starting in July and that the computer would be available in the fall, only two games, Pirate's Chase and Artillery Duel, were offered for the remainder of '82. The much-ballyhooed Conan the Barbarian game never saw the light of day, nor did the Z-Grass. Astrocade's '82 sales have been estimated at $20 million, its profits at $250,000.

Says Astrocade spokesperson Elena Quintana: "It cost us $120 to manufacture the motherboard (electronic circuitry) alone. How could we compete with Atari (the VCS) selling for $129 or Mattel's $50 rebate? . . . When Astrocade was formed in 1980, Atari was around $200 and Intellivision was up around $299. Back then, at least we had a chance."

Tom Meeks still thinks Astrocade has a chance. "We realize that the key (to Astrocade's survival) is software," observes the product manager, "and we have the best game designers in the business. We shipped 20,000 copies of our latest cartridge, Artillery Duel, and they were sold out in two days." There are some 100,000 Astrocades currently in American homes.

If the company is resurrected, expect to see several more Bally/Midway licensed titles. In the past, Astrocade's interpretations of arcade games have been extremely good. The Incredible Wizard is one of the best conversions ever of a coin-op game; Galactic Invasion is an excellent Galaxian; and Space Fortress even surpassed the original, Space Zap. If Astrocade's track record holds up, then it's probably fair to assume that Solar Fox, Omega Race, and The Adventures of Robby Roto would all be winners. Whether Astrocade ever gets the chance to prove this is now in the hands of investors and a Federal judge.

—*Mark Brownstein*

Computer Comix Bring Capers to Paper Screen

With more and more elementary schools making computer literacy a graduation requirement, it's no surprise that computers are showing up in children's comics. Already, Radio Shack is using them as a teaching device, and the *Dondi* comic strip recently completed a storyline showing how computers can be used and misused by people.

The TRS-80 computer has shared center stage with an impressive line-up of superheroes in three comics produced by DC Comics for Radio Shack over the last four years. Superman, the first to foray into the brave new world of bits 'n' bytes, has since been joined by his sexy sidekicks, Supergirl and Wonder Woman. Each issue provides brief overviews and shows how easy the TRS-80 is to use. The comics all feature a Metropolis class filled with precocious but curious students and a sympathetic teacher who just happens to be friends with the Man of Steel. Actually, it's Superman, not the teacher, who does most of the talking as he convinces the class that without computers our world wouldn't be ready to face the challenges of tomorrow. Invariably, some danger arises, requiring Superman to rely on the students and the TRS-80 for help.

Superman as a TRS-80 spokeshero.

"Although comic books are considered outmoded compared with audio-visual aids," says Tandy Corp.'s Bill Palmer, "they still have a unique way of creating interest among young people. It's an aspect that doesn't seem to diminish. We adapted the comic to an educational item that was acceptable to the field of education, and we've been very successful."

Radio Shack, owned by Tandy, publishes three million copies of each comic a year. It supplies its stores with the comics for free distribution and also sends promotional packages and sample issues to teachers around the country. Bulk copies are available on request.

While no plans have been set, Palmer expects more comics will be produced to promote Radio Shack equipment (though not necessarily with Superman) in the next year or so. Meanwhile, Radio Shack will continue to publish its own in-house comic, *Science Fair*, which Palmer has worked on for the last eight years. *Science Fair* doesn't feature superheroes explaining the wonders of computers; it simply tells all about computers in a colorful, entertaining way.

It wasn't until Dondi cracked the principal's code, that Angles fraud was found out.

Could you imagine Dondi Wills, America's second favorite orphan, typing away on a TRS-80 at Midville's grammar school? Last year, computers were introduced to the school by the new principal, Dr. Harlan Angles. While Angles' students found them more interesting than schoolbooks, the principal had other things in mind, such as using them to land the position of Commissioner of Education.

You see, when the Governor called for statewide tests to determine the best school, Angles fixed the results via the computer, guaranteeing that his school would come out on top. Unfortunately for him, Dondi and his pals discovered the scam. But Angles was not about to go down without a fight. He thwarted Dondi's every move to get the evidence (on Angles' computer in his office) to convince the Governor that his mentor was up to no good. Well almost every move.

The idea for the 16-week story was hatched by Irwin Hasen, who has been drawing *Dondi* for over 30 years. "I have a friend who owns an Apple Computer store," Hasen explained from his Manhattan apartment. "I thought it was a hell of an idea for a story because kids today are doing this sort of thing. He took me around the local school and I watched the kids in the classrooms. I also spoke with the teachers and their principal. I went back to Bob Oksner, who writes the strip, and we came up with the story line."

IBM and Hasen's friend supplied Oksner, who lives in Woodstock, N.Y., with the necessary research materials. Soon, he and Hasen felt "computer literate" enough to begin the story, which began running in hundreds of newspapers on September 22. Perhaps expressing their feelings, Dondi's mother at one point remarks: "Let's face it parents, it's a new generation and a different world!"

Although Dondi has admitted liking Pac-Man and Tempest, Hasen says we won't see Dondi actually playing video games for awhile. However, several syndicated strips, including *Ziggy*, *Bloom County* and *Doonesbury*, regularly feature the games and their players.

—*Robert Greenberger*

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Oh Nooooo! It's Mr. Bill

If one software trend emerged at the January Consumer Electronics Show (CES), it was crazy licensing. Not so surprising was Coleco's Rocky Battles the Champ, a take-off on *Rocky III,* or U.S. Games' announcement that it would release a companion game simultaneously with the next Pink Panther film. But games based on *M*A*S*H, Dallas,* Mssrs. T and Bill, and even a Barnum & Bailey circus act? Crazy.

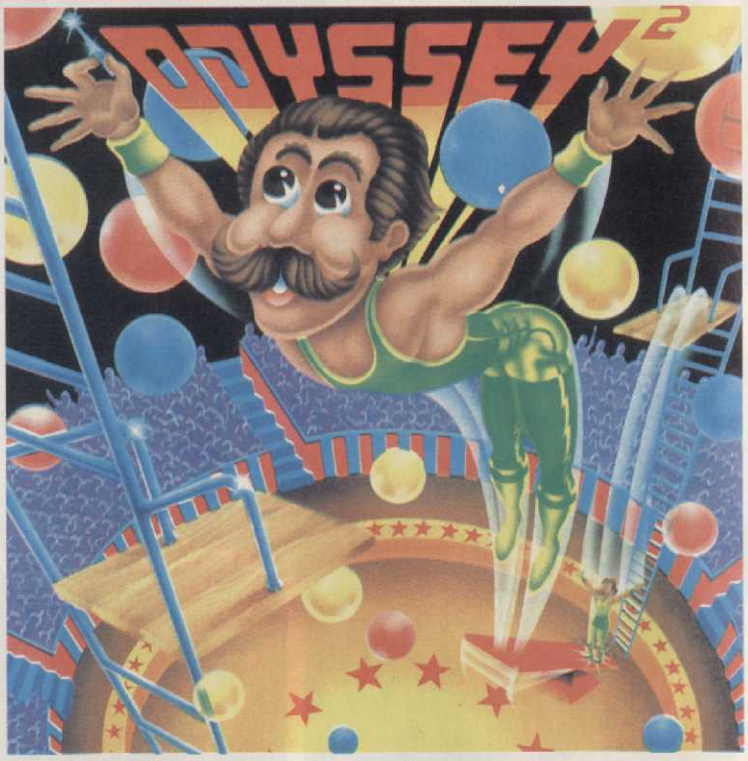
Considering that Atari's E.T. game has not lived up to expectations (especially since Atari paid MCA $21 million for the license), you'd think the industry might become a bit conservative. Hardly. Yes, a lesson has been learned by all—a license is only as good as the game inside the box is how Data Age's marketing manager Dave Galli put it—but that's about all.

Data Age knows from licensing. The freshman game company out of Campbell, Calif. has built its early success on one major title, *Escape,* an album by the rock group Journey. The game, Journey Escape, has sold well since being introduced in January and will become the first TV-game ever converted into a quarter-eater. Bally and Data Age proudly made that joint announcement at the show.

A game called Mr. Bill's Neighborhood will be Data Age's next licensing experiment (followed by one featuring Rocky's nemesis, Mr. T). For those of you too young (or too old) to watch late-night television, Mr. Bill is a clay-doll character whose frequent appearance on *Saturday Night Live* over the years has earned him cult status. Created by Walter Williams, Mr. Bill is forever being manhandled by the bully Sluggo and the sadistic Mr. Hands. All of this will be translated into a maze-type video game.

"You're out to save Mr. Bill," says Williams, who is working directly with the programmers on the project. "He's coming home to a bad neighborhood to collect all three family members (girlfriend Sally, dog Spot, and mother). The game is set in a maze that scrolls vertically.

With Mr. Bill's Neighborhood, Data Age has done it again. Oh nooooooo!



Acrobats, NAP's first licensed game. Oh nooooooo!

You have to watch out for random cars that whiz by, and there are alleyways that turn into dead ends."

Sluggo, of course, is in hot pursuit of Mr. Bill, who must also be careful to avoid the ever-clumsy Mr. Hands. When Mr. Bill runs into Sluggo, the screen projects a close-up of poor Mr. Bill. "Oh nooooooooo," he cries in his pathetic, high-pitched voice.

"For seven years," offers Ray Dettling, Data Age's product development manager, "Mr. Bill has been stepped on, sat upon, pulled apart, and tortured in every imaginable way. Now Mr. Bill fans will have the chance they've been waiting for: to keep him away from Sluggo."

*M*A*S*H* fans will also benefit from the licensing trend. Twentieth Century-Fox's M*A*S*H game will be introduced just as the award-winning TV series is ending its 11-year affair with American viewers. Beginning in April, fans will be able to manipulate a helicopter, avoid airborne enemies, pick up wounded soldiers, and perform surgery against the clock. The game will be made available for at least six game systems and computers.

Fox also plans to make a stunt-man game out of another of its TV properties, *The Fall Guy,* in the near future. Meanwhile, in a late-breaking news item at CES, it was announced that Datasoft, the computer software firm, has sewed up the rights for a *Dallas* video game. No specifics were released about the project, except that it would be available for play on several computers later this year.

Already available is P.T. Barnum's Acrobats, the first license ever procured by North American Philips for its Odyssey system. Says vice-president David Arganbright: "(Acrobats) is just the first step in our efforts to obtain unique licenses for Odyssey software."

Crazy! —*Anne Krueger*

Videa to Do Pizza Time with Bushnell

Fifteen months after leaving Atari in a huff and starting up their own company, Videa, coin-op engineers par excellence Ed Rotberg, Howie Delman and Roger Hector are back in the corporate fold. But it won't be Atari who'll be signing their next checks; Nolan Bushnell, Atari's founder and chairman of Pizza Time Theatre, will be.

Photo by Victoria Rouse

The Videa folks have a new boss—Nolan Bushnell.

Videa was recently purchased by Pizza Time. Rotberg, Delman and Hector were immediately designated as vice-presidents for game design. Bushnell plans to release his first video game in seven years when his non-compete contract with Atari expires this October.

This development doesn't come as a great surprise. Videa's offices are located in a Sunnyvale, Calif. building owned by Bushnell, which houses a number of companies that comprise the Catalyst Group, another Bushnell venture. It had been rumored for months that Videa would join Pizza Time in some capacity.

Says Rotberg: "He made us an offer we couldn't refuse. I feel like we lost a baby, but we're happy about it."

Meanwhile, Videa's first effort since splitting away from Atari was introduced at the recent Consumer Electronics Show. Meltdown, a 20th Century-Fox game for the Atari VCS, is a fast-paced nuclear thriller. It should be available by April—just about the same time as the company's first coin-op project, which Rotberg would only reveal is a "very unique raster" game, will be hitting the arcades. Previously, the Videa team had had great success with such vector games such as Asteroids, Battle Zone and Lunar Lander.

About the prospect of working with Bushnell, the man who is generally credited with creating the video game industry, Rotberg offers: "I'm sure it'll be *very* interesting." —*Steve Bloom*

ASTRON BELT!

The First Videodisk Game

What do you get when you combine science-fiction film footage and a standard video game? Answer: Astron Belt, Sega Electronics' revolutionary videodisk-powered coin-op machine. Introduced at last November's Amusement & Music Operators Association trade show, it created quite a stir, drawing long lines of people to take a shot at Astron Belt.

Once seated in the cockpit-type booth, you were instructed to place the set of headphones over your ears. Stereo sound not only boomed through this device, but filtered through speakers to the left and right of your lower back, causing a realistic vibration. Now it was time to grab hold of the steering mechanism, press the start button, and take off. Suddenly, you were flying through space caverns and out into galaxies. Your mission: Fend off oncoming enemy fleets by launching missiles (a fire button is attached to the wheel). Occasionally, you would hit something, setting off a titanic explosion. Then the scene disappeared for a second (blank space) before the action continued.

A Sega spokesperson explains that the footage was taken from an actual sci-fi epic of yore called *Astron Belt*, though *VG* could find no film of that name. In any event, it was reminiscent of *Star Wars*—not a bad starting point. Astron Belt was a prototype; finished models will be ready this summer.

—*S.A./S.B.*

Scenes from an Imaginary Western: In Astron Belt, you are the red computer-generated ship. The pretty pictures are on videodisk.

Qube: Beam Me Next Door, Scotty

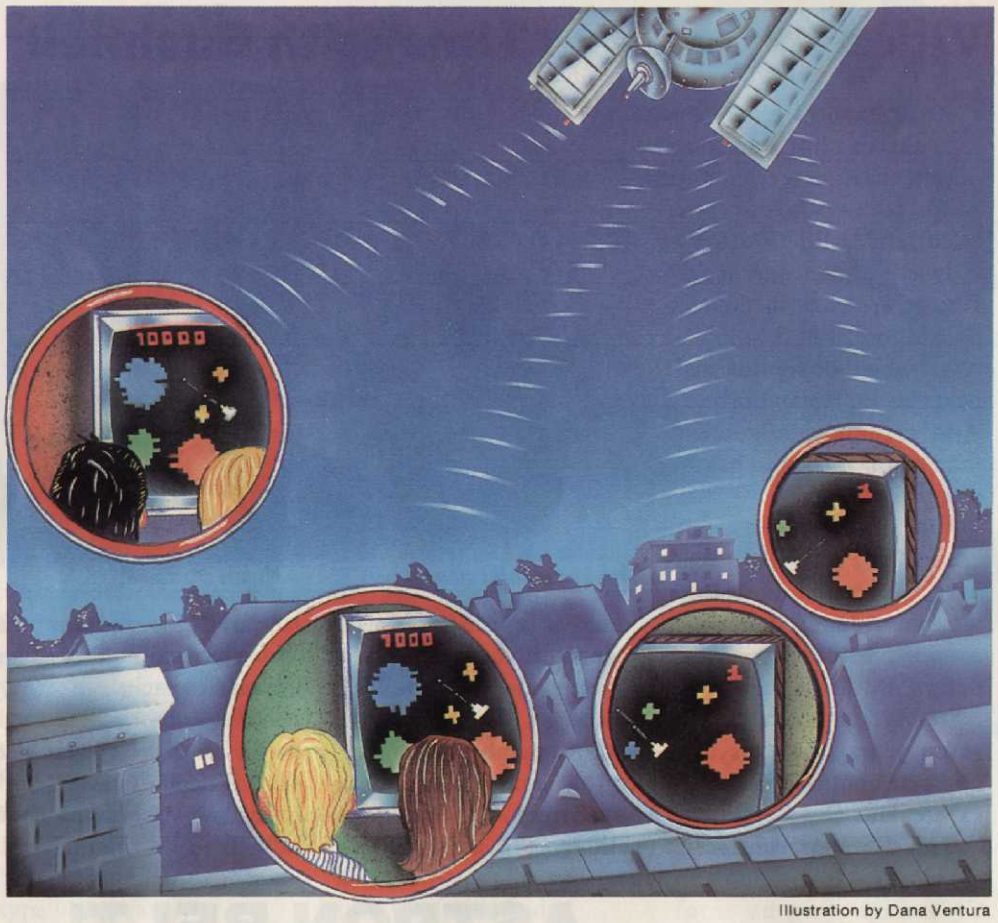


Illustration by Dana Ventura

Warner-Amex's Qube doesn't have six sides, moveable parts or any relation to Rubik's; it's an interactive cable-TV system that lets you punch in answers to such pithy televised questions as "Would you prefer to view a sit-com or a soap opera at 4:00 p.m.?" More to the point, you can play video games on it too.

By subscribing to Qube in Pittsburg, for example (the system is also available in Columbus, Ohio), you receive a keypad—the key to Qube's interactivity—and such programs as "Magic Touch," a once-a-week quiz that pits household versus household. The winner is announced at the conclusion of this half-hour show. "Magic Touch" is Pitt-Qube's most popular, locally-originated program, though one daily after-school feature seems to be catching up. It's called "Capture the Outlaw."

The game begins as one of the participating households is randomly selected to be the Outlaw; the rest get to play the Posse, chasing the Outlaw through an obstacle-filled maze. The Posse's movement is determined by a plurality of the participants' up, down, left and right moves. No points or prizes are awarded.

"I wouldn't really call it a video game," says Pitt-Qube spokesperson Evan Paddock. "Capture the Outlaw has less of the competitive, arcade mentality."

To find out whether Capture the Outlaw is a video game or not, you'll just have to go to Pittsburgh . . . or wait till Qube comes to a cable franchise near you.

—Michael Shore

JOYSHTICKS

Beetle Bailey, Agatha Crumb and Muppets © King Features Syndicate Boomer © United Features Syndicate.

You'll never see a line-up like this again, except perhaps in your wildest cartoon/arcade fantasy. VG *cartoonist Gene Williams tracked down four of the country's leading comic strip artists at Gallery Felice in New York last fall. Each added his own inimitable characters to this* Joyshticks *strip—no questions asked. "I was expecting the worst," Williams said. "Instead, everyone was really cooperative." From left to right: Williams' Scat and Whiz Bangs, followed by Mort Walker's Beetle Bailey, Mel Casson's Arnold (from* Boomer*), Bill Hoest's Agatha Crumb, and Brad Gilchrist's Gonzo (*The Muppets*).*

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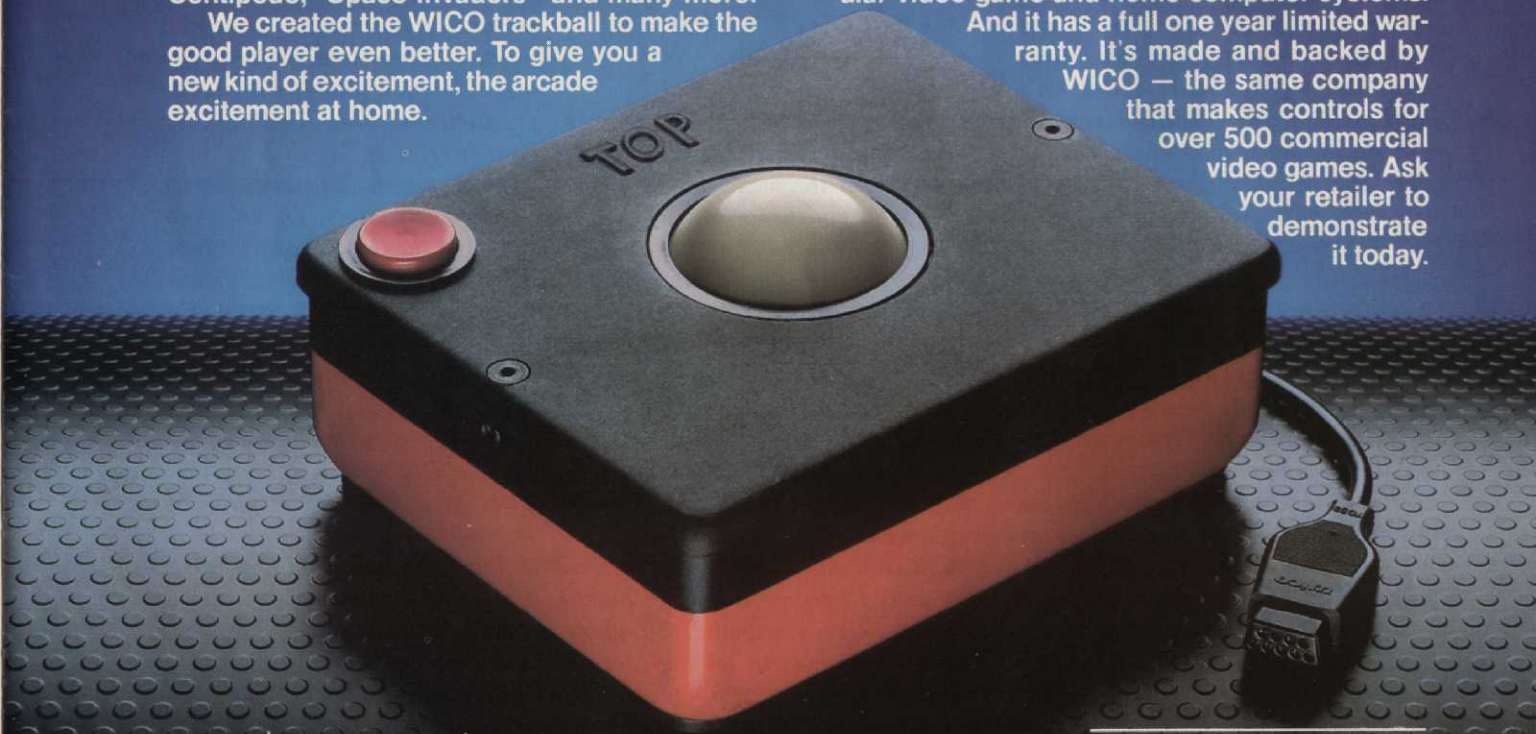

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Jim Levy

By Steve Bloom

Nobody does TV-games better than Activision, and don't think the company's effervescent chief executive doesn't know it.

Activision's "Little Big Man" Jim Levy may stand only five-foot-five tall in his stocking feet, but among his peers he is a giant in the video game industry. As president, Levy has orchestrated Activision's phenomenal growth in little over three years since he and a quartet of renegade Atari game designers united to form the industry's first software-only outfit. The company's figures are indeed impressive: from $6 million in revenues in 1980 to $66 million in '81 to over $100 million in the last fiscal year. Activision's next "benchmark," according to Levy, is $250 million. As they say in cheerleader parlance, "If anyone can do it, Activision can."

Levy, a marketing veteran who came up through the corporate ranks at Hershey Foods (packaged goods), Time, Inc. (publishing) and GRT Corp. (records and tapes), was sitting by his swimming pool in mid-1979 when he received a phone call from a lawyer friend. "He told me that he had just met with these four game designers who were planning to leave Atari and start a company," Levy recalls. "None of them had any business experience, so he told them to call me. That was the genesis of Activision."

Though he had a previous involvement with a start-up venture in personal computer software, Levy candidly admits: "I didn't know anything about the video game business." But Levy, parlaying the little he did know about computers with his six years of experience in the music industry, arrived at this conclusion:

"The whole microcomputer revolution represented for the '80s and '90s what the music revolution represented for the '50s, '60s, and '70s. There would be similar patterns developing, such as there being large manufacturers of hardware, like stereo companies, and there would be highly creative, very energetic software companies, like the creative end of the music business."

And so it was decided that Activision would become the first "highly creative, very energetic" TV-game software company to take advantage of the coming microcomputer revolution. The music industry parallel, of course, didn't stop there. One of Levy's truly master strokes was to publicize—much in the same way a record company hypes its artists—his own game designers. Heretofore, revealing who was responsible for what game (at companies like Atari and Mattel) was a sin punishable by death before a firing squad of Space Invaders. Activision changed all that, going as far as to even announce in TV ads: "Pitfall . . . by David Crane."

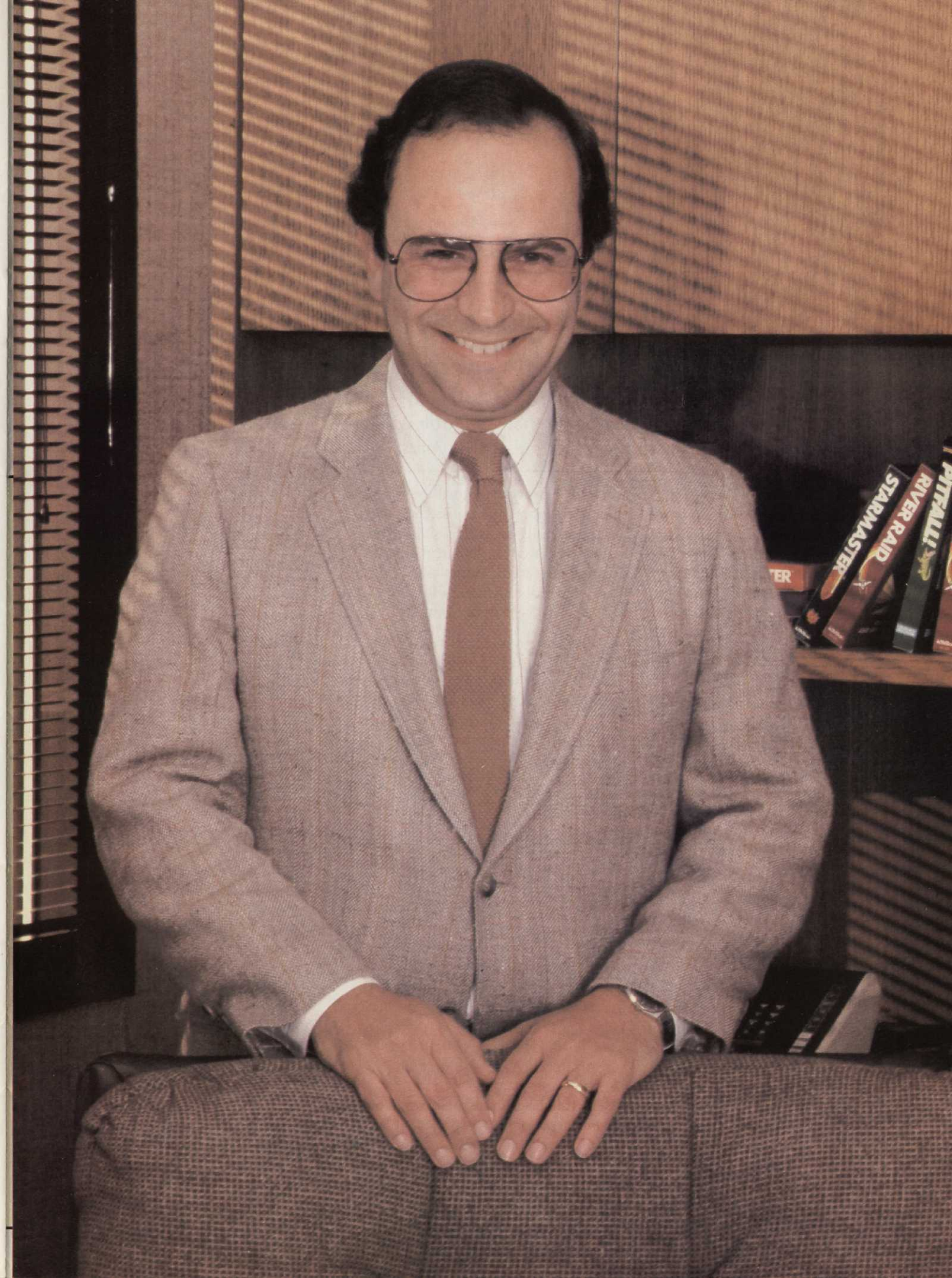
"Activision is a record company," Levy maintains. "But we're putting out video games. The way promotion, publicity, advertising and distribution is done is very similar to the record business. The whole rhythm of the business is similar too—we're putting out product, constantly focusing attention on new releases."

At the recent Consumer Electronics Show (CES), Activision's new releases attracted the usual crowds. There was Robotank, which received front-page coverage in the Wall Street Journal *("How Activision's Alan Miller Came Up With Robotank") shortly thereafter, Oink, Plaque Attack, Sea Quest, Dolphin, Keystone Kapers, Spider Fighter, River Raid, and Enduro. The latter game, a terrific driving contest, seemed to be among Levy's favorites; in fact, the following interview was delayed as he showed off the game's many facets to a group of retailers. So caught up in the action was this writer that the interview was further delayed by his own attempts to negotiate the Enduro course.*

Levy, it should be added, took valuable time out of his busy CES schedule to conduct this interview. Just think how much more proficient we'd both be at Enduro had he declined.

VIDEO GAMES: There's quite a bit of activity at the show. What do you think the big story is here?

Jim Levy: There are two things about the show I'm finding most interesting.


STARMASTER
RIVER RAID

"I don't think it will ever be true again that someone will dominate like Atari did with the VCS the last five years."

One is that there are no major surprises. The second is that it is an upbeat show. There was some concern that after all the press in December about the industry—specifically about Warner (Communications) and Mattel—that people would come here very apprehensive. But everyone we've talked to—retailers, distributors, other companies—*is* very upbeat.

VG: Do you share the going Wall Street opinion that a "shake-out" in the industry is inevitable?

Levy: The business doubled in '82; it's going to go up 75 percent in '83. The shake-out does not relate to an industry problem. Some companies may have adjustment problems, but the industry as a whole does not have problems.

VG: I'm sure you've given Atari's collapse a great deal of thought. Perhaps you could share some of your opinions with the reading audience.

Levy: Well, first of all, I think it's unfair to say that Atari collapsed this year. Certainly they didn't measure up in '82 to what people expected of them, and those expectations were partly bred by Atari and partly bred by Atari's history. I don't think they had a bad year. I think they had continued growth.

I do believe that there are questions in the future. There's a lot more competition in both the hardware and software businesses, and those things that were successful in the past may not necessarily be successful in the future. But I want to defend my friends down the street (in Sunnyvale, Calif.). They were not blown out of the water in 1982, but there were changes.

VG: From my vantage point, it seems that Atari's growth has gotten out of hand. The company lost touch with the playing public and has also lost many of its best designers, primarily because of the corporate atmosphere that prevails over there. Activision's growth has been very similar to Atari's, just quicker. Are you concerned at all that what has happened to Atari could also happen to Activision?

Levy: I think there are enormous differences between Activision's history and Atari's, so I think it's an unfair comparison. But I do think the question in and of itself is an interesting one: How do you prevent growth from overrunning the organization? There are a couple of things that I think helped us fundamentally and these are the reasons why I've never been terribly concerned about our ability to deal with our growth.

One is that when we sat down to put the business together, we philosophically drew out the history of the company for ten years going forward. Everything we do operates within a philosophical concept of how the industry was going to be and how the company was going to be. So we did not basically have to be making decisions by the seat of the pants, based on what we heard yesterday, because we were always working within a framework that we felt was consistent with the long-term development of the industry.

VG: Have you had to alter that strategy at all?

Levy: Basically, no. Basically, everything that is happening in this business is fairly consistent with the sort of overall concept we put together three-and-a-half years ago.

VG: The video game boom hasn't surprised you?

Levy: Only the magnitude of the numbers. But you don't run your business by numbers. You run your business by structure and form and concept of philosophy and talent. Then the numbers take care of themselves.

VG: When I last visited Activision (Nov. '81) you were tucked away in some industrial complex, had maybe 50 employees. Now you have your own office building and about 225 employees. You had just hired Steve Cartwright as the company's fifth game designer; I hear that that number is up to 31. Can you tell me where you're finding all these designers?

Levy: We're finding some and some are coming to us. Activision is known within the design community as a highly-original, creative organization, and it is a place where a lot of designers want to be. We also have what I would call a general overall talent-scouting kind of process which is not formal and highly aggressive, but it gives us the opportunity to identify talent when it's out there and to begin conversing with talent.

VG: It may seem premature, but have you given much thought to how you might prevent the loss of talent—the very likes of which is the foundation of your company?

Levy: I think talent goes places, does things and moves for a variety of reasons—and money is only one of them. Our designers are well rewarded. We don't talk about how they're compensated and what the structure is because that's private to us and them. But there are a lot of factors that draw

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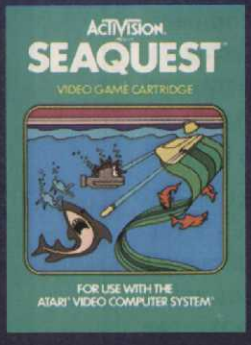

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talent to Activision and which encourage them to develop and stay with us than just what they're paid. As long as they are of the caliber and of the type and of the integrity that we've been able to develop throughout the company, I don't stay awake at night worrying about people leaving.

VG: There is, of course, the matter of Larry Kaplan's (one of Activision's original four designers) departure. As you may have read in *VIDEO GAMES* ("Kaboom! Kaplan Quits Activision," Jan. issue), Kaplan was not very happy with his life at Activision. He particularly picked on you and your "superstar approach" regarding the designers, which he said was all "hype."

Levy: There are hundreds of thousands of game players who would not agree with that. They like knowing who the designers are. They like being able to communicate with them. They like knowing what they're all about and what they think. They want to know who it is that's doing the work that they're enjoying. I mean, we're not doing it for my benefit. All right? You have to understand that Activision was formed by five people, four of whom were designers. I'm the chief executive and I represent the company, but there's a lot more input to the whole process than just Jim Levy.

With respect to Larry, he had personal reasons for wanting to leave. He did want to work on hardware—he had always expressed that. And although we do work on hardware from an analysis and engineering standpoint, we're not a hardware company. He was very interested in being involved in hardware development. And I think fundamentally that's why he left.

VG: The Activision product line is somewhat predictable. There's a certain game style, and a graphics style that identifies it as an Activision game. This reminds me of how a movie can be traced to a particular studio just by looking for certain trademark characteristics.

Levy: It's like a producer. A producer has a certain style, and the body of work that he does over a time will bear similarities.

VG: What is it about Activision's "body of work" that makes the games so identifiable?

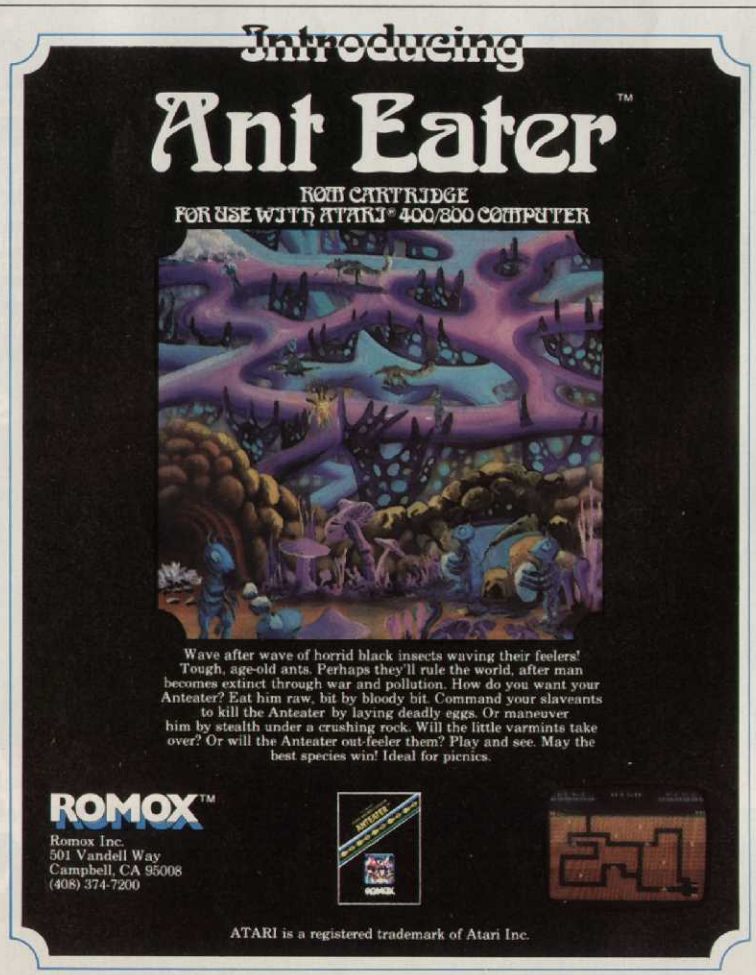
Levy: I finally figured out what it was yesterday, believe it or not—it's that the games have a personality to them. They have a humanity and warmth that is an extension of the people who design them. The last 10 or 15 percent that takes it from just a picture that does things into something that pulls you in and makes you part of it emotionally—that's what seems to set them apart. I'm very proud of that. That's why it's an art form and not a science.

VG: Another thing that clearly sets Activision apart is the fact that you have never licensed either an arcade game or a property. Is this a strict company policy?

Levy: The answer to that question is not that we will never do it. We don't have an absolute prohibition on licensing. Our philosophy has been that the backbone of the business for the long-term is your ability to create original work. And so we deliberately chose to build from inside the design group rather than to go to the arcades looking for a short-term hit. You go out, you grab it, you get a big rush on it, and then it's gone.

The arcades can only give you eight or 10 titles a year that mean anything, and there are going to be 300 cartridges released a year. Where are they all going to come from? From David Crane and Al Miller and Steve Cartwright and Matt Hubbard and Carol Shaw and so forth. From our standpoint, it's not necessary to license a game to get a good game. I think we have proved, or, if you will, disproved the arcade myth with Pitfall. There was always this rap out there that said Activision can't really blow the lid off, can't have a megahit without an arcade title. Well, there's no question that it's a bonafide megahit—it's well over one million units and has got a long way to run. Pitfall's been No. 1 for the longest period since they've been keeping charts in the business.

VG: OK, let's forget about the arcades. Is there even the slightest temptation to run out and buy the rights for E.T., for instance, like Atari did?



Levy: I'll tell you where it's more likely to come from—from a designer who says, "I've got an idea that I think would work well within the concept of a film I saw or a book that I read, and maybe we should explore it." It's less likely to come from the marketing or business group. You know—"let's go out and buy this title and find somebody to do it." That would be highly unusual and probably impossible within the way we run things.

VG: Looking around at everyone else's booths I see a major trend toward designing games for home computers as well as TV-game systems. Here at Activision, however, everything still seems geared toward the VCS and Intellivision. Why is that?

Levy: You have to realize that this is a show and we don't come in here and tell people everything we're doing. Just because I'm not showing it to you here doesn't mean I'm not doing something. We have announced that we're going to introduce 400/800 Atari software in the second half of the year. We are working in a lot of areas, but until we've completed and are ready to do a proper launching, we don't talk about the thing.

VG: The fact remains that you haven't shown any computer-compatible software to this point. There must be a reason why.

Levy: Well, I think that we approach things a little bit more methodically and deliberately in terms of developing a product line for a system. It's not just the case of taking Pitfall and running it across everything, including the calculator in your car. I think it's really early to predict how viable some of the hardware out there is going to be in three or four years from now. Plus, we're doing exhaustive technical analysis of all the hardware because we don't want to work on systems that don't give us the capability to do the best work. The VCS is the mainstream of the business. Intellivision is a clear No. 2. After that, there's a lot of growth and change happening.

So people come by and say, "Well, you're not doing VIC-20 and you're not doing TI (Texas Instruments) and you're not doing this and you're not doing that." And my answer is: "What's the rush?" We're a very deliberate company. We always have been. We never make long-term decisions on a short-term basis. That perhaps sets us apart in some ways as well.

VG: One thing we haven't touched on is all the hardware maneuvering that's happening here. There's Intellivision II and III, the Odyssey Command Control unit, at least a dozen new home computers and a slew of add-ons for the VCS. What do you make of all this?

Levy: Hardware manufacturers are basically trying to develop a line at all points. They want to be down towards the lower end of the game business because there's real high volume there, and that's going to be the mainstay. It's like the compact stereo business—everyone is going to have one. They want to have something priced in the $150 range—either a super game system that can turn into a computer, or a low-price computer. And then they're going to want to be positioned up at the high end with the more elite equipment.

Five years from now you'll have three major hardware categories: the under-$100 game system, and perhaps the real low-price computers; the $100 to $200 computer; and the over-$200 computer. The higher-priced units are going to have downward compatibility. The lower-priced units will probably not have upward compatibility in the main. As a result, what you're going to have is commonality across all the hardware categories—adapters, keyboards and so on.

VG: This move towards hardware compatibility or commonality, which has been spearheaded by Coleco with its VCS adapter, has enormous implications. Do you see it as a lift for the software industry?

Levy: Definitely. The more commonality you have across systems, the more comfortable software producers like ourselves are at working on various systems. You just don't have to go for the mainstream big-number systems. It evens up the hardware race somewhat. I don't think that it will ever be true again that someone will dominate like Atari did with the VCS in the last five years.

(Continued on page 78)

The Life and Times of Q*bert & Joust

Sayonara, Pac-Man! American coin-op companies are finally fighting back with their own brand of Japanese-styled video games.

By Neil Tesser

The Amusement & Music Operators Association (AMOA) meets each November in Chicago in the exhibit hall of one of the city's finer hotel establishments (last November's was held in the Hyatt House on Wacker Drive). In direct contrast to these stylish surroundings, the AMOA show is a madhouse. For the dedicated player, it is video game heaven; for just about anyone else, it is sheer pandemonium. The glittering exhibits, the eye-catching models, the non-stop traffic—and, of course, the batteries of games themselves—all conspire to create a shattering assault on the senses. More than once I've left for a breath of air, only to find my fingers still twitching and my eyes clouded by mazes, monsters, and laser blasts of one type or another.

Somehow, out of all the confusion, a few games manage to rise above the din to impress nearly everyone as the year's hot ticket. At the '82 AMOA, those games were Joust and Q*bert. In Joust, the gamer—or two gamers, playing cooperatively—controls a warrior riding an ostrich; the idea is to gain an altitude advantage over the enemy riders (atop buzzards), in order to dismount them when the combatants clash. In Q*bert, the player directs an endearingly hideous little creature around a pyramid made of cubes in his effort to change each one to another color; but poor Q*bert, who is rotund and sports an obscene-looking honker, is beset by balls that bounce down the pyramid, by a snake and two ill-tempered monsters, and by two spoilsports intent on undoing his work. Joust exudes an air of mystery, hearkening back to medieval legends of yore; Q*bert eschews such seriousness, leaping here and there on his single-minded task and muttering unintelligible curses when he's caught. Where the one offers elegance, the other is ingratiatingly silly.

But they do have something in common. Judging by their high-quality animation, their story lines and their absence of violence, you'd probably guess that Joust and Q*bert are of Japanese origin, like most of the best-selling coin-op games in recent times. Not so. These two games are of rich American stock. Have the American video game companies finally wised up to the ways of their Far East counterparts? Are they now prepared to beat the competitors at their own games—to out-Japanese the Japanese?

Well, yes. And then again, no.

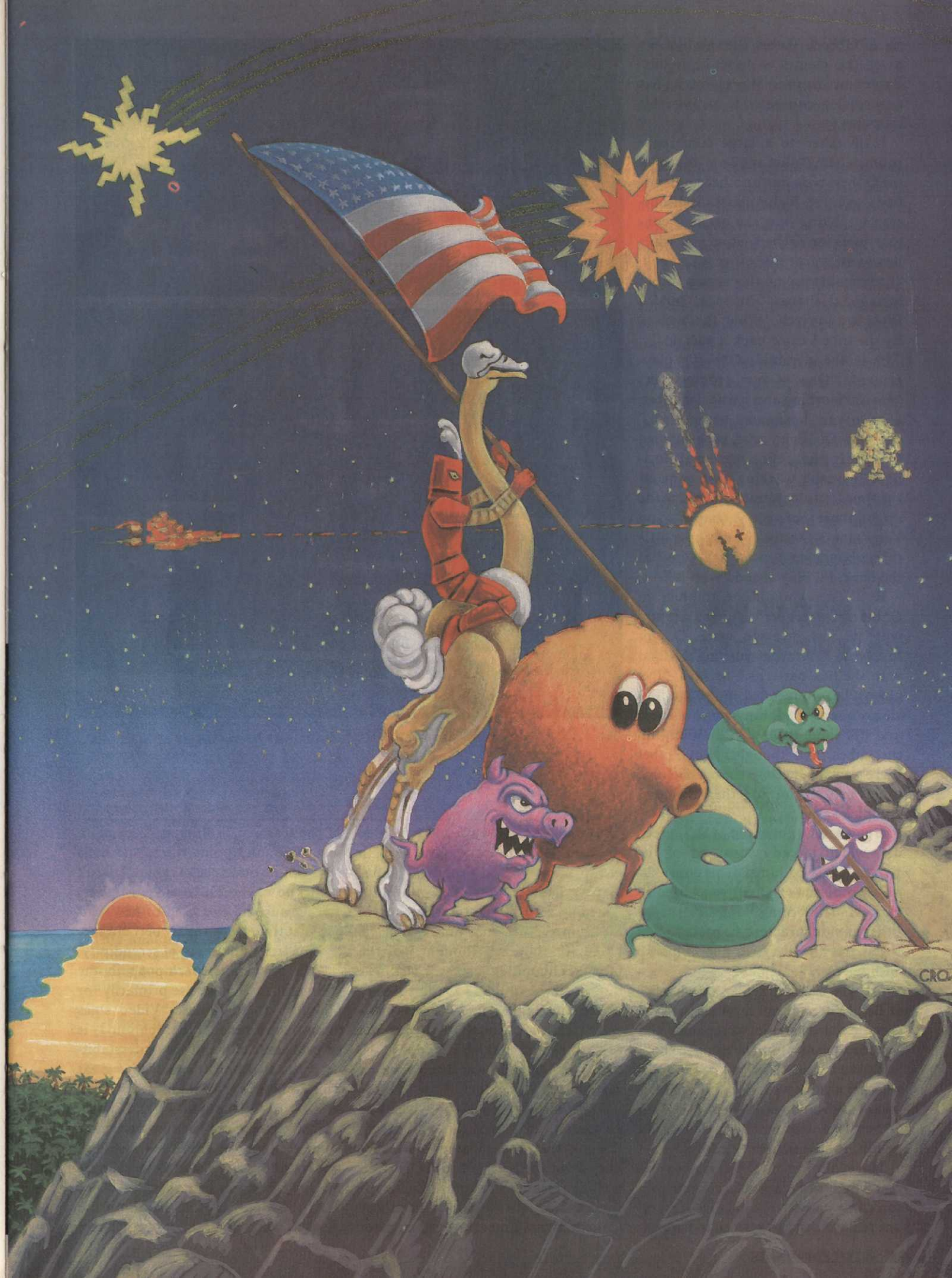
* * * * *

Gottlieb & Co.'s offices in Chicago's Northlake suburb is well guarded. Like its rivals, Gottlieb worries about corporate secrets leaving the building. With this in mind, I am waved through the gates moments before my scheduled meeting with the crew that designed Q*bert.

For years, pinball was Gottlieb's main source of revenue; but pinball profits have dwindled considerably in the last three years, forcing the company to diversify its operations. Going into video was the easiest solution; putting together a hit game, however, took some time.

Gottlieb's first three videos—No Man's Land, New York! New York!, and Reactor—all fared worse than the company had hoped. Q*bert, on the other hand, is doing so well Gottlieb can't fill all its orders. Parker Brothers has already purchased the rights to turn the little bugger into a TV-game cartridge and at least a dozen other companies will soon be peddling everything from clothes to stick-ons with Q*bert and the game's motley cast of characters on it. There's even talk of a Saturday morning cartoon series, a la Pac-Man.

I'm first introduced to Howie Rubin, vice-president, who has already warned me that I cannot divulge any of the design team's names. Without having made this agreement, I would not be minutes away from learning the gene-



sis of Q*bert. Rubin doesn't like the press (he claims to have been misquoted by *Business Week*), but he has nevertheless consented to arrange this interview.

I am taken to a large conference room, where Rubin and I are joined by the Q*bert crew and another unidentified executive. Rubin starts the discussion by joking how the original concept work on Q*bert happened while he was away from the office for a week. "I remember seeing this screen full of hexagonal shapes," he says, "and I thought to myself, 'Wow, that's nice.' By the time I came back it was up."

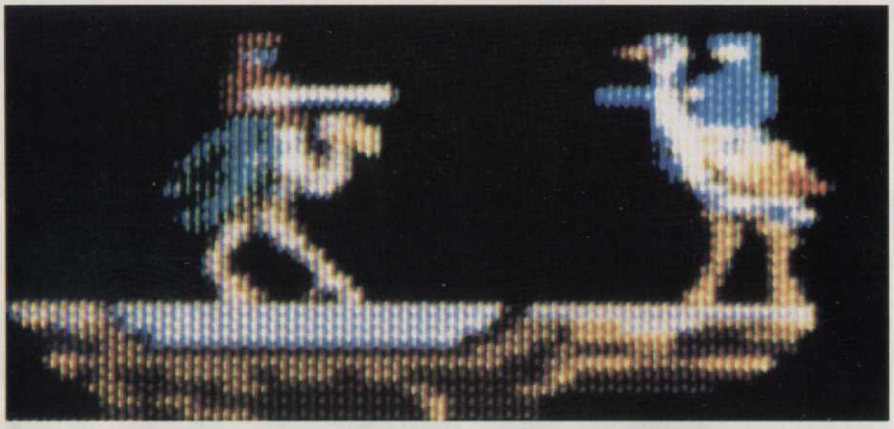
It is the pyramid, Q*bert's playground. "One of our programmers here was working on a particular effect, kind of an hexagonal-base effect," explains D. Ziner, who programmed Q*bert. It was his first project at Gottlieb. "I wasn't working on a game at the time. I just saw this pyramid made up of these hexagonal shapes—you know, the 3-D cubes—and these little things bouncing down. I figured, what the heck, I'll play around with it."

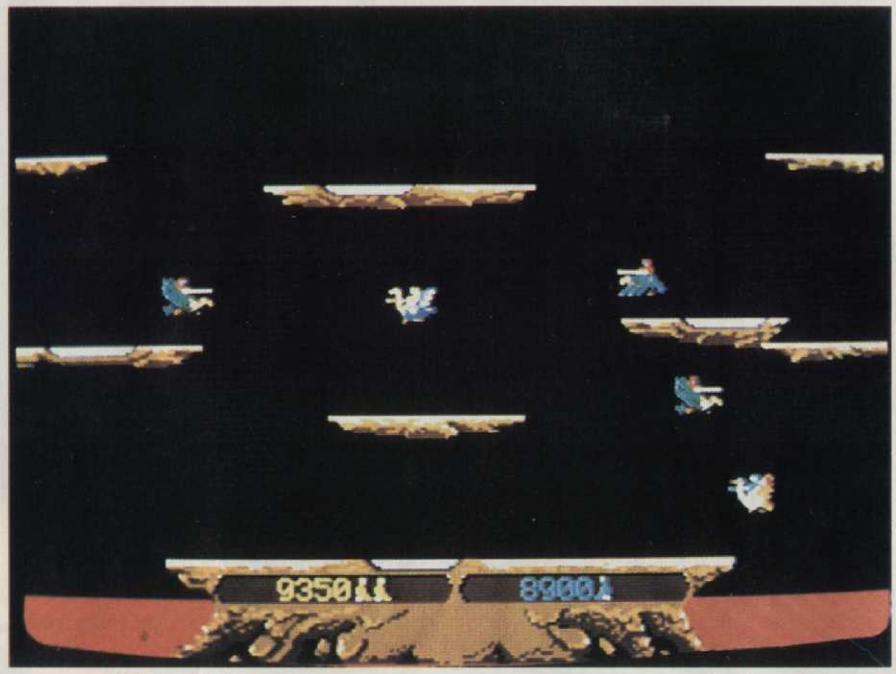
R. Teeste, who did the graphics on Q*bert, had begun "screwing around with it" just prior to when D. got involved. "I started playing around with the hex patterns," he says. "I've always been interested in optical illusions. Then I made a pyramid of them and put these little guys standing on the cubes, and thought, 'Boy, I bet there's a game here.' So, me and some other people put together this real complex scenario."

But when D. got ahold of R.'s screen art, which already consisted of the pyramid, Q*bert himself (his considerable probiscus originally was used to shoot "mucus bombs") and some of the other game characters, he pretty much threw out the scenario and came up with his own gameplay.

D., who last worked as an engineer at Bell Labs, was not familiar with the specific characteristics of Japanese and American games until he came to Gottlieb. "As a game player, I never knew whether a game was Japanese or not; it meant absolutely nothing to me. With Q*bert I wanted something that would be fun, something really goofy."

The evolution of Q*bert is not what you would call textbook. No one person came up with the idea. In fact, no one really did; it just seemed to happen.





Says Williams' John Newcomer, Joust's creator: "The flying theme, where guys are on the back of birds, has been around for a long time. My thing was: If you're going to fly like a bird, you should feel like a bird."

"Basically, when we started the video division," Rubin says, "we hired a group of people to program games, and we had the first of many brainstorming sessions. We put five or six ideas on the drawing board, and we voted for those we thought had the most likelihood of success." That was in August of '82, and Q*bert wasn't on the list. "I think that Q*bert is just a classic case of a bunch of guys seeing something and making it happen," he adds. "If penicillin was discovered by accident, so was Q*bert."

The finishing touch to Q*bert was its soundtrack—from the suction-cup thwock that accompanies his every hop about the pyramid to the garbled wail he releases whenever he falls off the edge and into the game's incredibly realistic abyss. Enter the third member of the team, J. Walkman. "I came in just about the point where the balls were falling down the pyramid. I didn't even know who D. was," remembers J., "because he was kind of new. But the first time I saw the Q*bert character was truly a moment of serendipity.

"We have a voice chip up in the sound lab, which we use primarily for pinball," J. continues. "Video shies away from it because the technology is several years old, and the understability is not that hot. It speaks this great foreign language though, and when I saw Q*bert, I thought we had struck on the perfect use for this particular voice technology. Since you couldn't understand what it said anyway, why not have it say its own thing?"

At this point, J. told D. about the chip. "It was a natural," J. says. "There

was a focus to it. I think video games need a focus anyhow, and if the sounds aren't working right in a video game, it's more often because the video game's not working either. The sounds just kind of highlight the confusion, the fact that there's too many things going on, that there's no focus."

In Q*bert, all the characters have voices, but they don't always say the same things. J. adds with a touch of whimsy: "I'm sure if you put an infinite number of Q*berts in a room with typewriters, they will say the Gettysburg Address eventually."

After the interview, I was given a brief tour of manufacturing facilities. Several rows of Q*berts were on test, being electronically played over and over to prepare them for the rigors of arcade life. Standing in the center of this area, I could hear dozens of grumbling voices, a symphony of electric jingles, and the endless echoes of a small large-nosed creature falling into oblivion. To anyone else, it would sound like the inside of a lunatic's nightmare. To the guys at Gottlieb, it's music to the ears.

* * * * *

Gottlieb's Howie Rubin speaks proudly of the "atmosphere of creativity" his company provides to allow for the teamwork that produced Q*bert; a few miles away, his counterpart at Williams Electronics makes the same case for *his* company. But Williams vice-president Ron Crouse has a different kind of teamwork in mind. Where the team that created Q*bert resembled an improvisational comedy troupe, the group responsible for Joust was supervised by one individual—the director, if you will. John Newcomer was that individual.

"The approach we take," Crouse explains, "is the team approach, whereby you have a very talented creative guy, such as John, who really is the leader of the effort, and you have some good programmers—who maybe have some input, and some creativity—but they're not the masterminds. We tie the game designer with an excellent programmer, and support him with some artists and some graphics people. The result is you get something like Joust."

The final head count on Joust was actually seven programmers, artists, and sound people not including Newcomer (whose name is particularly appropriate since he had never worked on a video game before Joust). Newcomer doesn't program, draw, or create sounds; he's a concept person who depends on others to shape his ideas into games.

"I came here out of the toy industry," says Newcomer, who arrived at Williams in the fall of '81. "I worked developing toy concepts for various companies (his designs included Block the Clock and Splish-Splash). I'm fairly good at telling a story, and that's what a video game is all about. Here I had a chance to tell a story and have an animated figure that moved around, too."

Joust was developed in a much more

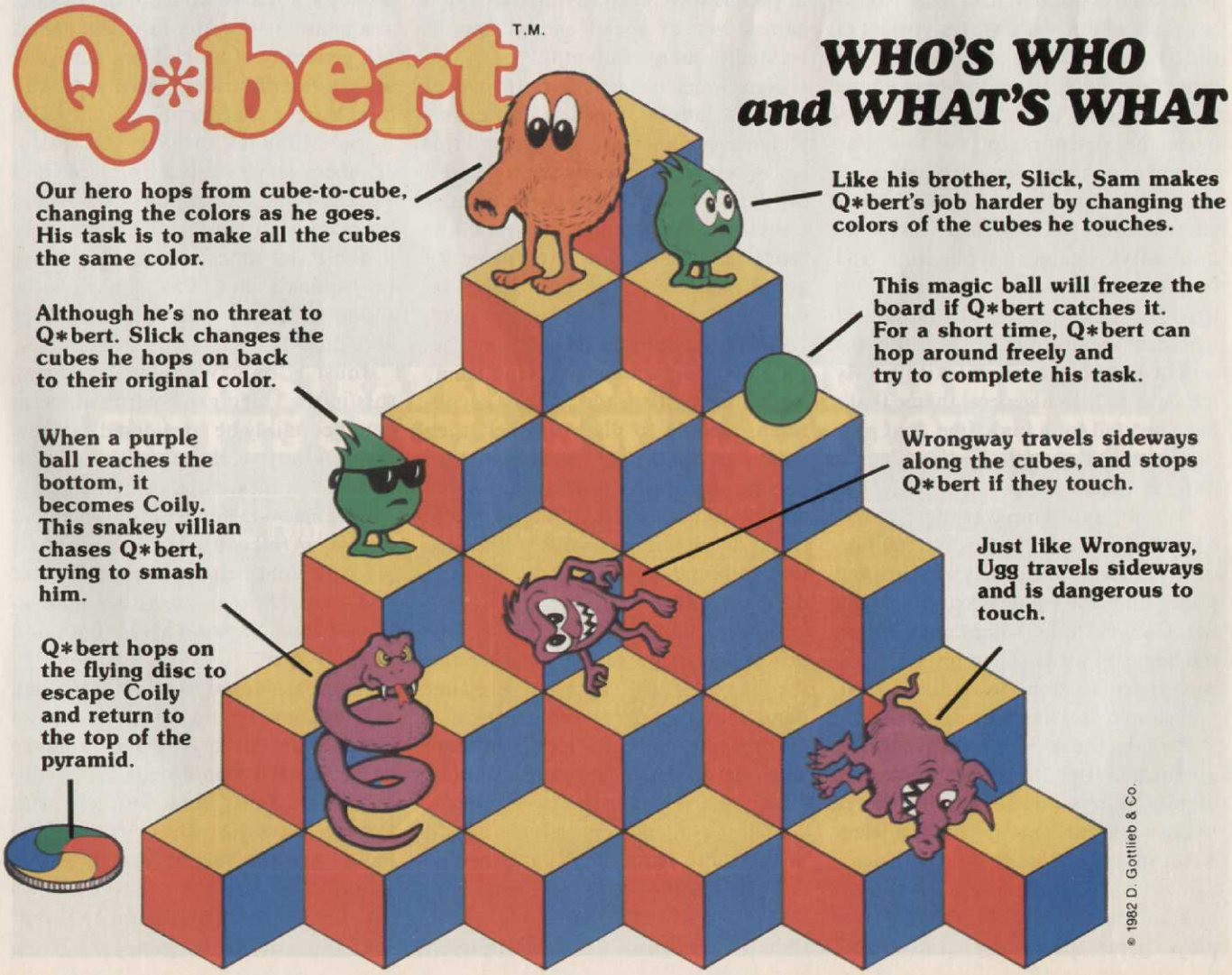


Photo by Steve Kagan

*In Q*bertland, you hear dozens of grumbling voices, a symphony of electronic jingles, and the endless echoes of a small, large-nosed creature falling into oblivion. To the guys at Gottlieb, it's music to their ears.*

structured fashion than Q*bert. "Basically what I did was go through a lot of the traditional kinds of games that are done," recalls Newcomer, whose young face and heavy-lidded eyes almost disguise the sharpness of his thinking. "First I thought about a driving game, a shoot-'em-up game, and a sports game before I realized that no one had done a flying game in a long time. So I felt the timing was right. I was also tired of space games. I thought it would be really nice to get into the sci-fi aspect, but done realistically. My idea was to take a general theme that's been around for a long time, that people are familiar with, and put it in a different package.

"I'm an avid comic reader," Newcomer continues. "I also like mythology. The flying theme has been around a long time: the whole Icarus thing and the Conan thing, where guys are on the backs of birds. Then my big thing was: If you're going to fly like a bird, you should *feel* like a bird."

Perhaps the most innovative aspect of Joust is the "flap" button, which literally allows you to *feel* like you're flying while participating in the ancient Arthurian sword sport. And with nearly every video game now a solo affair, he reintroduced the cooperative two-player game, specifically because "a lot of people have been saying that video games weren't social enough, and I wanted to take a stab at it."

Newcomer is particularly proud of many variations Joust has. For example, the opening wave features red riders, who are fairly easy targets, and a full-length bridge along the bottom of the screen. But then in the second or "survival" wave, you are forced to adopt a different strategy—that is, by becoming a little more conservative, you should be able to stay alive and get the 3,000-point bonus. With the "team" wave, Newcomer says, "We're encouraging people to play together; then with the "gladiator" wave, we turn around and bribe people with 3,000 points to knock off their buddy. We're trying to introduce people to the idea that you can play this game a couple of different ways."

In succeeding rounds, the bridge begins to burn away, at which point the "Lava Troll" appears: a gaunt hand that rises from the depths and grabs whatever it can. "He doesn't care who he grabs," Newcomer notes. "Everyone is under the same rules—enemies and players alike. They'll bounce into ledges and have trouble flying just like you do. Suddenly, you feel you're all on the same level." Then there's the Shadow Lord, which is "at least double the toughness of any other character out there," he says. "That again changes your play dramatically: you have to stop fighting for a while to pick up some eggs, and that causes you to take some risks."

Such attention to strategic detail is yet another hallmark of many Japanese games, but Williams' Ron Crouse sees a flaw in the argument that Oriental success may have bred American imitation. "The Japanese are incredibly technically oriented," Crouse points out. "They can take something and redo it and make wonderful improvements on it. But there's not a whole lot of originality. The games that are successful in the States are the rare games that do have original concepts—probably a half-dozen of them you can name. What you *don't* see in the States are the literally hundreds of games that are flops in Japan, all different variations of these other games.

"The Japanese culture is also very different from ours," Crouse goes on. "The Japanese player wants to get his money's worth when he plays a game; as a consequence, the Japanese games are generally slower. They generally have a lot of strategy involved. And they believe that games should tell a story. Many of the very successful Japanese games really are derived from Japanese nursery rhymes. Pac-Man, for instance, is derived from the story of the Paku monster that eats things very quickly, and 'Paku-Paku' is the sound he makes when he eats things very quickly."

Joust is only Williams' sixth ring toss in the video game carnival, yet it could certainly be considered a departure. Of the five, three have been hard-hitting, quintessential American psychodramas—Defender, Stargate and Robotron (all courtesy of Eugene Jarvis, with some help from Larry DeMar and Sam Dicker)—and two were licensed from Japan—Make Trax and Moon Patrol.

If emphasis on strategy, storytelling, and personality and a de-emphasis on violence are all keys to the Japanese game vault, it would seem that Williams, with Joust, and Gottlieb, with Q*bert, have just about robbed the bank. Are the successful new games taking after the Japanese role models that are Pac-Man and Donkey Kong? Well, no. And then again, yes. ▲

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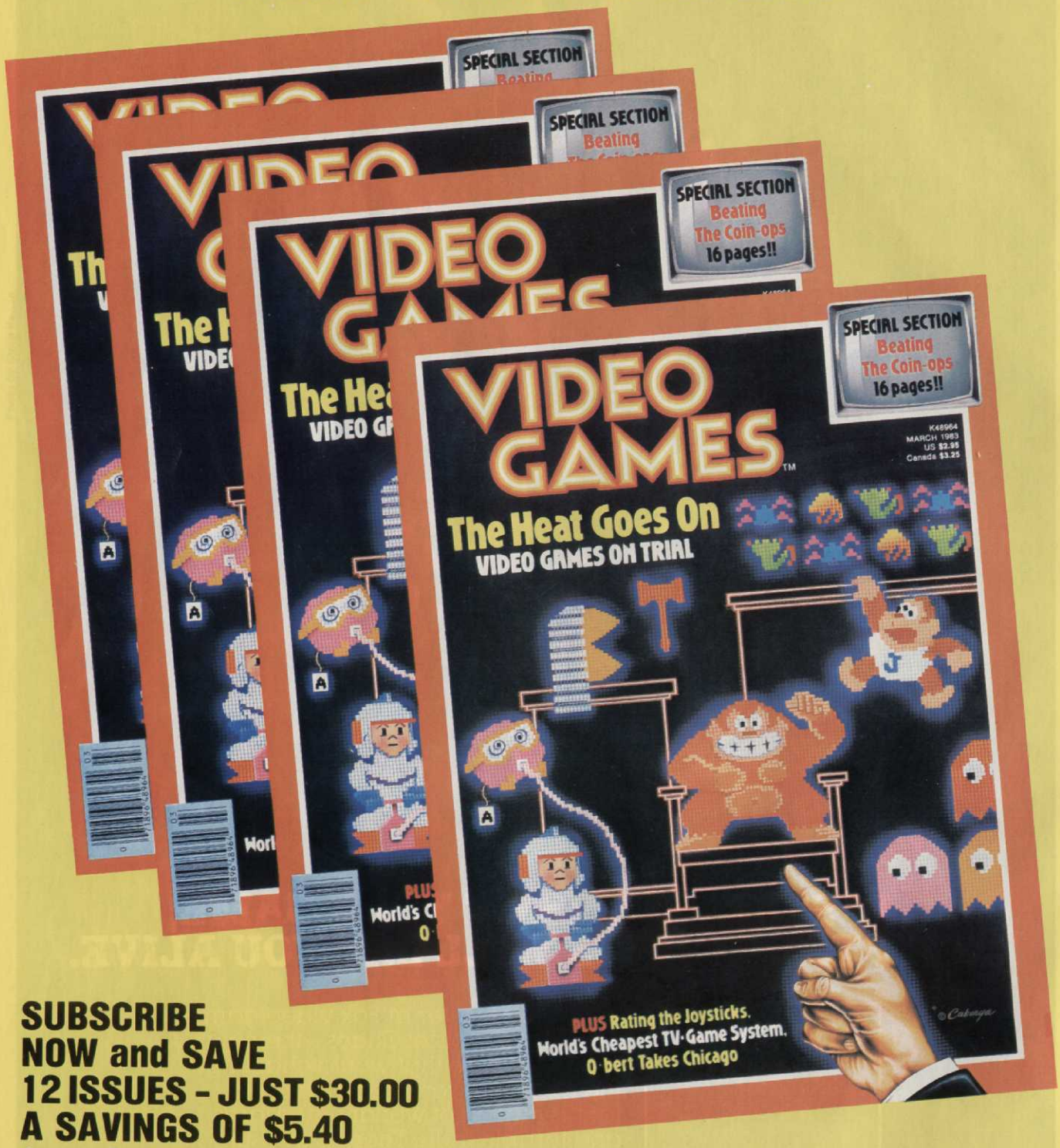

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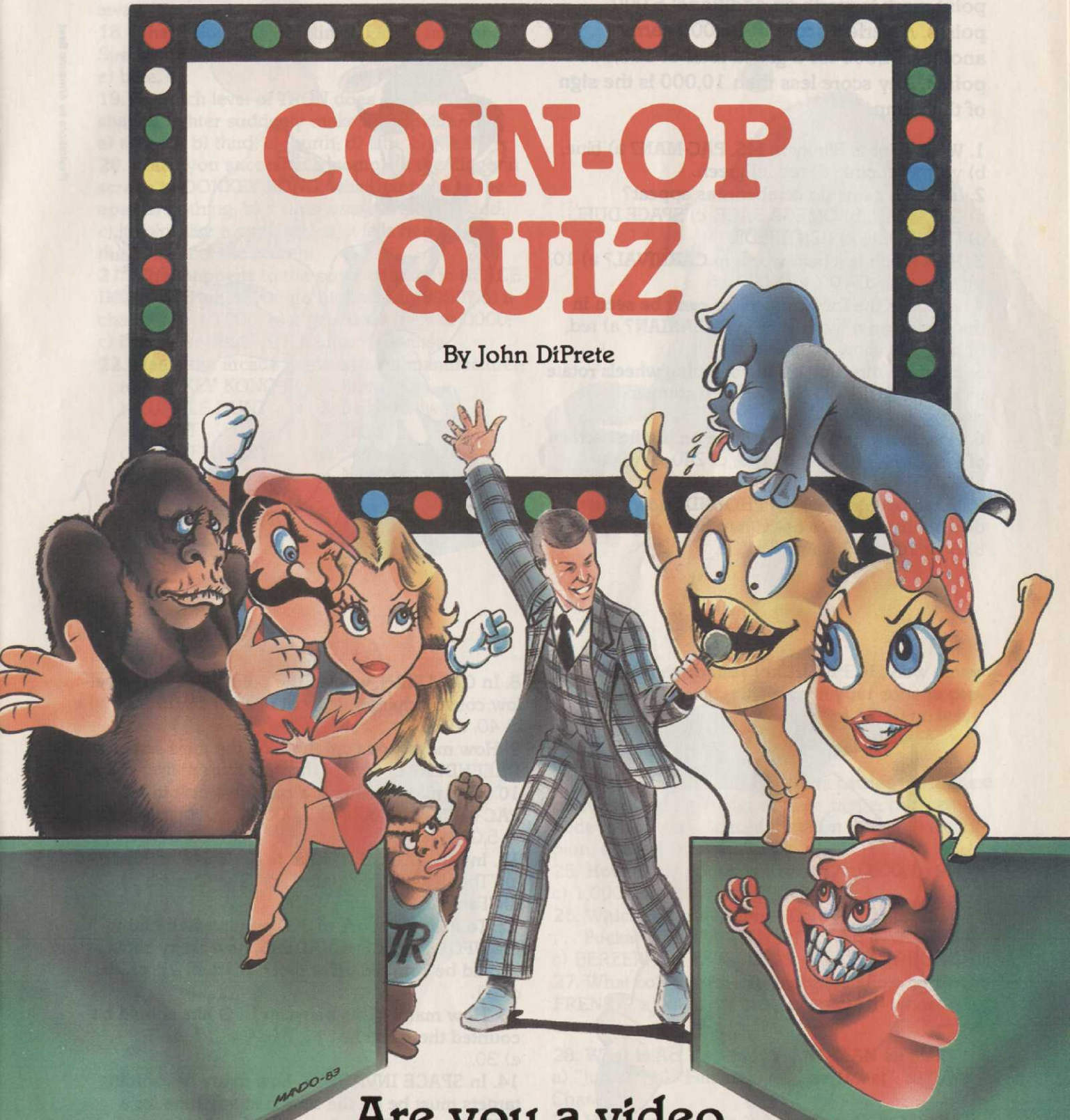
COIN-OP QUIZ

By John DiPrete



Are you a video game whiz or a wimp? It's about time we found out.

Scoring: Each question is worth 1,000 points. Each correct answer after reaching the 20,000-point mark is worth an additional 5,000 points. A perfect score of 86,000 earns another 14,000 for a grand total of 100,000 points. Any score less than 10,000 is the sign of the wimp.

Illustrations by Armando Baez

1. What color is Blinky in MS. PAC-MAN? a) blue; b) yellow; c) pink; d) red; e) green.

2. In which game do octahedrons appear? a) GALAXIAN; b) OMEGA RACE; c) SPACE DUEL; d) DEFENDER; e) CENTIPEDE.

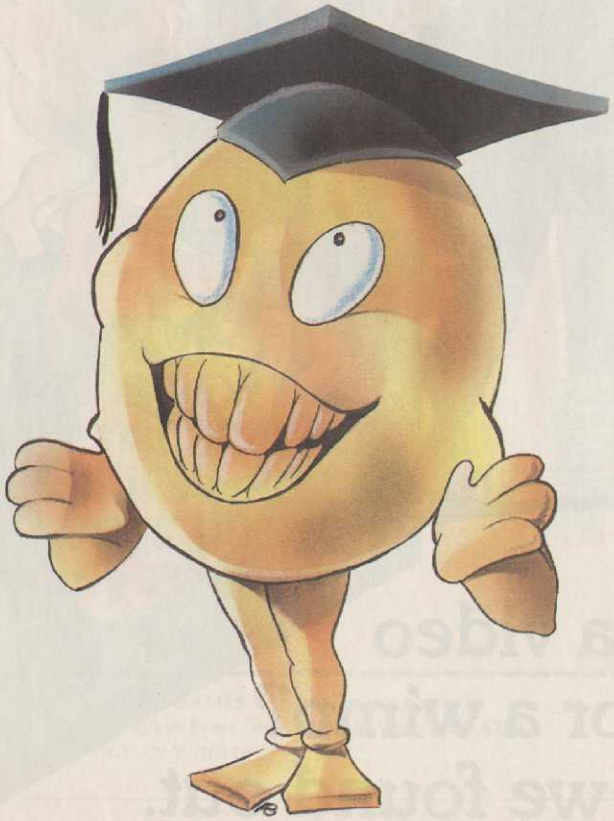
3. How much is a bear worth in CARNIVAL? a) 10; b) 30; c) 50; d) 100; e) 1,000.

4. Which of the following colors can't be seen in the explosion of your ship in GALAXIAN? a) red; b) pink; c) yellow; d) green.

5. In which direction do the spinning wheels rotate in SPACE DUEL? a) clockwise; b) counter-clockwise; c) both.

6. How many tiny dots are there on the first screen of PAC-MAN? a) 100; b) 197; c) 240; d) 300; e) 420.

7. In the opening level of PHOENIX, how many descending globules hatch into birds of prey? a) 6; b) 8; c) 10; d) 12.



8. In GALAXIAN, what is the point value of the yellow convoy charger while at rest? a) 60; b) 50; c) 40; d) 30.

9. How many pods are there on the third screen of DEFENDER? a) two; b) three; c) four; d) five; e) six.

10. How many points is a banana worth in MS. PAC-MAN? a) 1,000; b) 2,000; c) 3,000; d) 4,000; e) 5,000.

11. In MS. PAC-MAN, what is Act Three entitled? a) "They Meet"; b) "Junior"; c) "The Chase"; d) "Fanfare".

12. To insure a score of 300 points when hitting the UFO in SPACE INVADERS, how many shots should be counted off at first? a) 18; b) 22; c) 29; d) 31.

13. How many shots between UFO hits should be counted thereafter? a) 11; b) 14; c) 17; d) 21; e) 30.

14. In SPACE INVADERS, how many descending targets must be on the screen at any time for a UFO to appear? a) at least one; b) at least two; c) at least four; d) at least eight; e) at least 10.

15. How many shots are required to destroy a mine in SPACE DUEL? a) four; b) five; c) six; d) seven.

16. In which direction do the cubes rotate in SPACE DUEL? a) clockwise; b) counter-clockwise; c) both.

17. When the hero rescues the damsel in JUNGLE HUNT, what does she do? a) slaps his face; b) says, "My Hero!"; c) dismisses him; d) runs away.

18. What color eyes do Blinky, Pinky, Inky, and Sue have? a) white; b) green; c) red; d) black; e) blue.

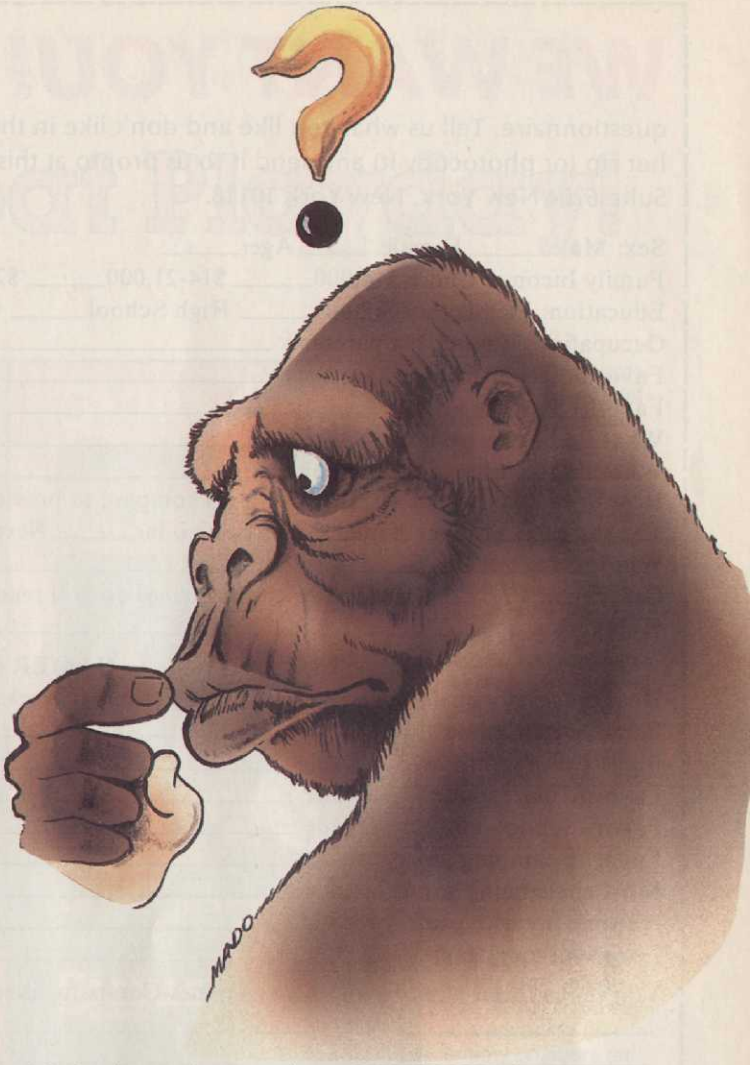
19. At which level of TRON does a horseshoe-shaped fighter suddenly make its appearance? a) second; b) third; c) fourth; d) fifth; e) twelfth.

20. When you successfully complete the Ziggurat screen in DONKEY KONG, what happens to the ape? a) nothing; b) it runs away empty-handed; c) it spins like a pinwheel; d) it falls headfirst to the bottom of the screen.

21. What happens to the score counter in SPACE INVADERS when you go higher than 9999? a) it changes to 10,000; b) it gets reset back to 0000; c) it locks at 9999; d) it counts in reverse.

22. Match the arcade game with its manufacturer:

a. DONKEY KONG JR.	1. Atari
b. JUNGLE HUNT	2. Bally/Midway
c. JOUST	3. Taito
d. TUNNEL HUNT	4. Sega/Gremlin
e. FROGGER	5. Nintendo
f. THE ADVENTURES OF ROBBY ROTO	6. Williams
g. TEMPEST	7. Centuri



23. In the early rounds in CENTIPEDE, how many mushrooms should you leave in your zone to prevent fleas from dropping down? a) 12; b) no less than five; c) as many as eight; d) as many as possible.

24. Which CENTIPEDE character carries the highest point value? a) a spider at close range; b) a centipede head; c) a spider at medium range; d) a scorpion; e) a spider at far range.

25. How many points is it worth? a) 600; b) 900; c) 1,000; d) 1,500; e) 2,000.

26. Which game declares, "Coin . . . Detected . . . In . . . Pocket"? a) PAC-MAN; b) SPACE INVADERS; c) BERZERK; d) ASTEROIDS; e) DONKEY KONG.

27. What color is the impenetrable maze barrier in FRENZY? a) black; b) blue; c) green; d) white; e) red.

28. What is Act Two in MS. PAC-MAN entitled? a) "Junior"; b) "Fanfare"; c) "They Meet"; d) "The Chase".

29. How many points is a pear worth in MS. PAC-MAN? a) 1000; b) 2000; c) 3000; d) 4000; e) 5000.

30. Who is Evil Otto? a) Boris Badanoff's kid brother; b) Boris Karloff's nickname; c) the ruthless Prussian ruler from the 14th century; d) the cute little bouncing ball in BERZERK and FRENZY.

For answers see page 81.

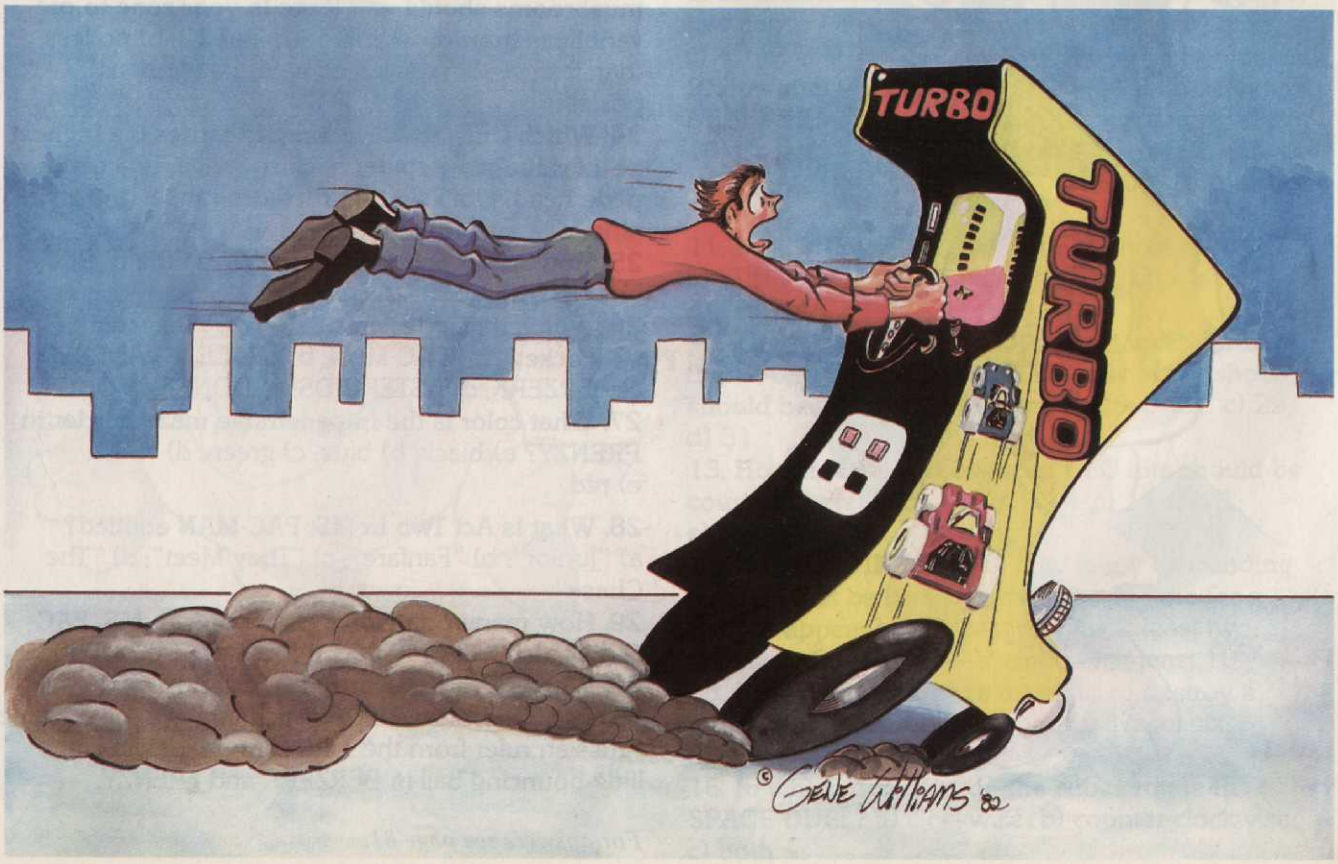
WE WANT YOU!

To put your joystick down long enough to fill out this questionnaire. Tell us what you like and don't like in the arcades, at home and about this magazine. Then let her rip (or photocopy it) and send it to us pronto at this address: *VIDEO GAMES* Magazine, 350 Fifth Ave., Suite 6204 New York, New York 10118.

Sex: Male_____ Female_____ Age:_____
Family Income: Under $14,000_____ $14-21,000_____ $21-39,999_____ Over $40,000_____
Education: Elementary School_____ High School_____ College_____ Master's_____ PhD_____
Occupation (if none, list parents'): _____
Favorite Department in this issue: _____
Favorite Feature article: _____ Favorite Blip: _____
What I'd like to see less of: _____
What I'd like to read more about: _____
How does this issue of *VIDEO GAMES* compare to previous ones?
The same_____ Even better_____ Best so far_____ Never mind_____
Why?_____
Other than *VIDEO GAMES* which magazines do you read?_____
Hobbies:_____

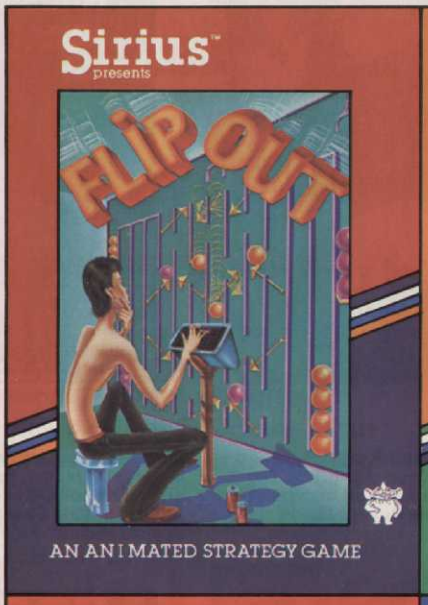
GAMER SECTION

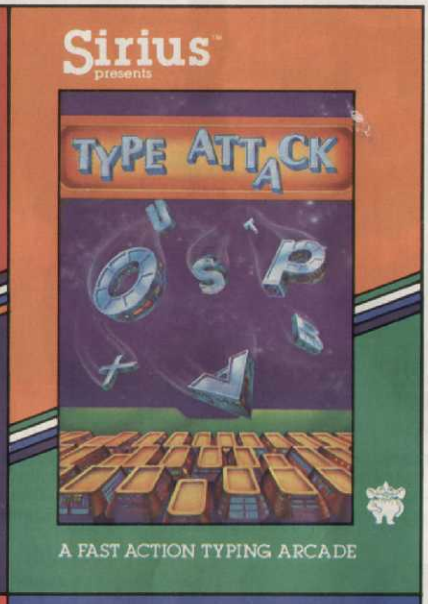
How much money do you spend on video games per week?_____
Favorite new game: arcade _____ home_____
Biggest disappointment: arcade _____ home_____
Favorite maze game: arcade _____ home_____
Favorite shoot-'em-up: arcade _____ home_____
Favorite climbing game: arcade _____ home_____
Most challenging game: arcade _____ home_____
All-time favorite game: arcade _____ home_____
Favorite sequel game:_____
You've just been hired by Big Name Games Company as senior games designer. Describe your first project: _____



Have A Great Playday!

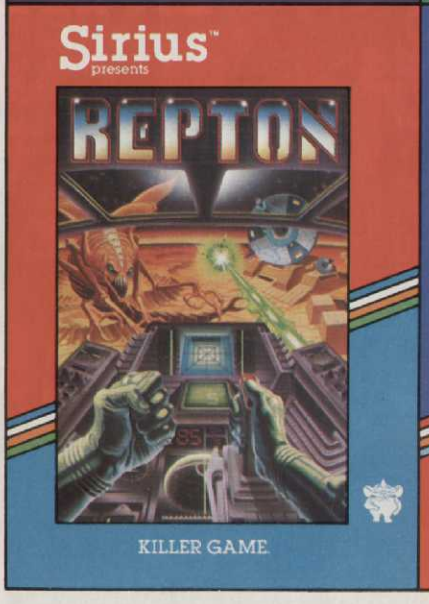
Take your marble to the top. Pick your spot and let it drop. Hope for a flip instead of a flop. Once you get it, the fun never stops! It's FLIP OUT — a crazy new strategy game for one or two players. Each marble you drop causes a chain reaction, so take your time and plan carefully. Plan right and you'll flip, if you didn't you Flip Out!

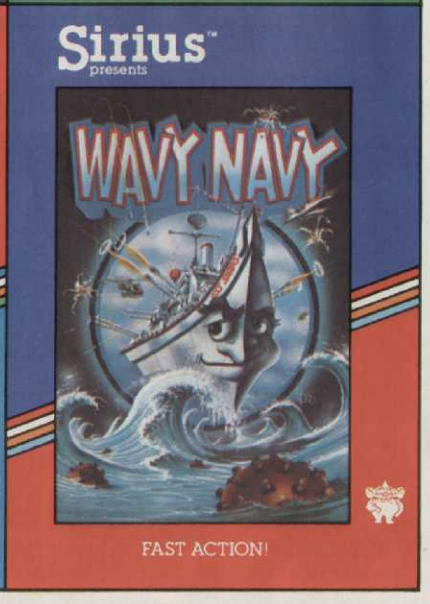




Turn your keyboard into a typing arcade! You can blast attacking letters and words right out of the sky. Type Attack was designed by a professional educator and the fast action game experts at Sirius. It features 39 preprogrammed lessons and 60 user defined lessons. Great sound, graphics and a real-time words per minute bar make improving your typing skills fun!

It is up to you to stop the invasion of the evil Quarriors and save Repton. You are armed with devastating Nuke Bombs, a Radar Screen, a Laser Gun and an Energy Shield. You'll need them all! You'll be attacked by Nova Cruisers and Single Saucers. You must avoid Spye Satellites and deadly Dyne-Beam Shooters and you must stop the Draynes from depleting the Reptonian power supply. Repton is a battle so thrilling you'll be relieved to find out you're still on earth when it's over!





Talk about adventure on the high seas! You're blasting away at a squadron of enemy bombers and Kamikaze fighters from the deck of your P.T. boat. Suddenly you notice the sea is loaded with mines and an Exocet missile is screaming toward you on the horizon. Instinctively you jerk the joystick to the starboard, keeping your thumb on the fire button. Phew! That was close! Sometimes it's hard to believe Wavy Navy's just a video game.

New Games For Your Apple II From Sirius™

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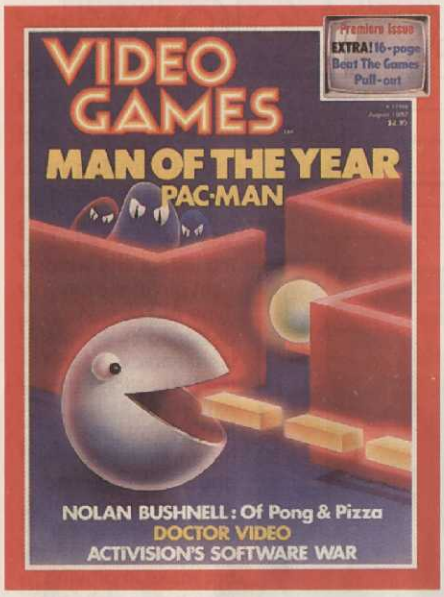
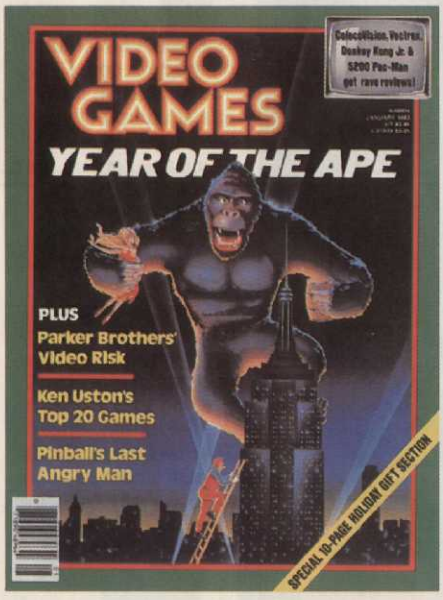


August '82—Premiere Issue!
Interview: Nolan Bushnell; features on Pac-Man, Activision and home computers; reviews of Atari VCS, Odyssey² and A.O.E.; Dr. Video discusses video game therapy; Special section: Beating the Coin-ops. . .

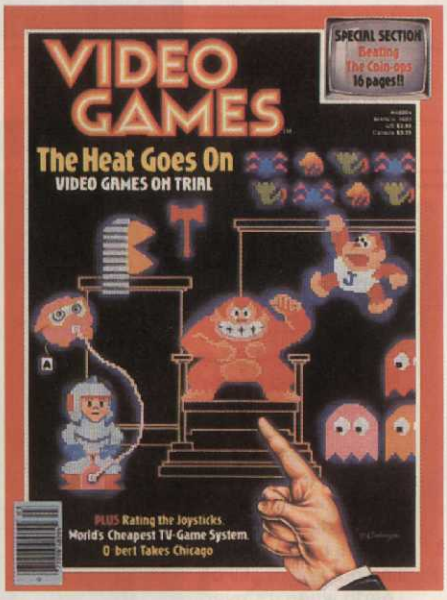
October '82
Interview: Tim Skelly; features on Coleco and *Tron*; reviews of Intellivision, Astrocade, Dig Dug, Zaxxon; "The Zydroid Legion" debuts; Special section: TV-game Buyer's Guide. . .

December '82
Interviews: Ken Uston and George Plimpton; features on Mattel, Bally/Midway and programming computer games; reviews of *Tron*, Atlantis, Pitfall, Caveman, the Arcadia 2001; Special section: Atari's 10th Anniversary. . .



January '83
Interview: Bill Grubb and Dennis Koble; features on Donkey Kong ("Zen & the Art of. . ."), Parker Brothers and pinball; reviews of ColecoVision, Vectrex, Donkey Kong Jr., Q*bert and tip books; Bull's Eye takes aim; Special section: Holiday Gift Guide. . .

February '83
Interview: Ralph Baer; features on video game movies, cable-TV and the future; reviews of the Atari 5200, The Incredible Wizard and the '82 arcade scene; Dr. Video takes a look at video game violence; Special section: *Easy Home Computer* debuts. . .



March '83
Special Interview: The Great Debate; features on women & video games, joysticks; reviews of E.T., Raiders, Demon Attack, the AMOA convention; Atari, Imagic & Coleco go to court; Special section: Beating the Top 15 Coin-Ops

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CES

Photography by Perry Greenberg

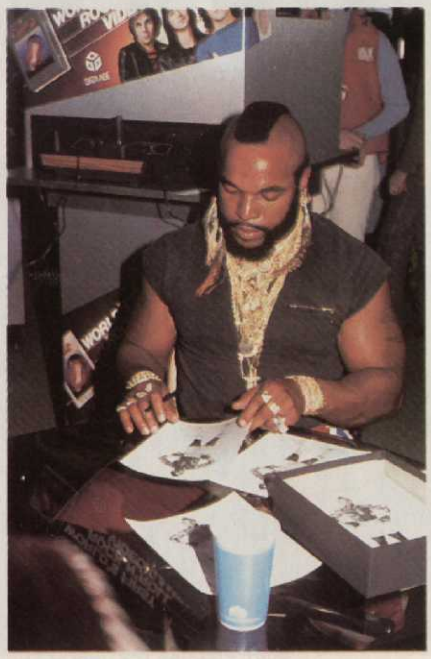
Some people are still just recovering fom this year's 11th annual Consumer Electronics Show, held last Jan. 5-9., in Las Vegas. A record 78,126 people attended with 1,056 exhibitors showing all kinds of wares. Atari founder Nolan Bushnell was there announcing a line of domestic robots for his new Androbot company; Milton Bradley showed off the "almost human computer," a chess game called Electronic Grand-Master, which automatically moves its own pieces and a line of "voice-command" cartridges for the Texas Instruments 99/4A home computer. Jane Fonda and Richard Simmons were there to hype their video work-out tapes; and Darth Vader made a special stopover before returning to the "Deathstar." As you'll see on the following pages, these were just a few of the happenings at this gala event.

A group of state and city officials, including Nevada governor Richard Bryan and Las Vegas mayor William H. Briare, wield a pair of oversized scissors for the ribbon-cutting ceremony.

A scene from Rocky Battles the Champ, soon to be a video game from Coleco.

An overview of Las Vegas cavernous Convention Center. In the foreground is Magazine Row, where trade and consumer publications set up shop.

What's a publisher to do? VG's Cheh Low blushes as he receives busses from our favorite foursome.



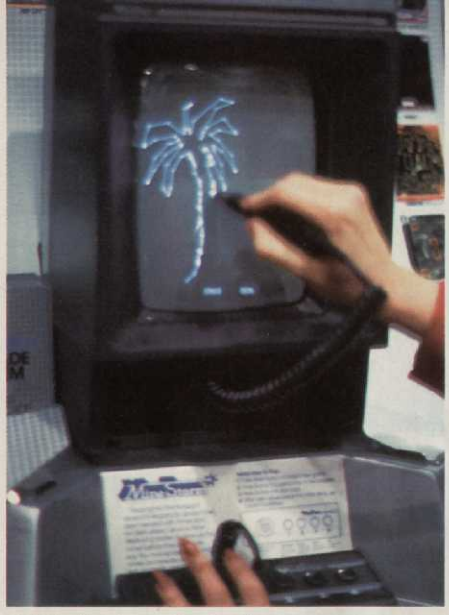
Mr. T, who'll be turned into a video game by Data Age, signs autographs for his fans. Rocky who?

Weird Bird, who left a trail of green eggs wherever he went, was there to tout U.S. Games' Eggomania.

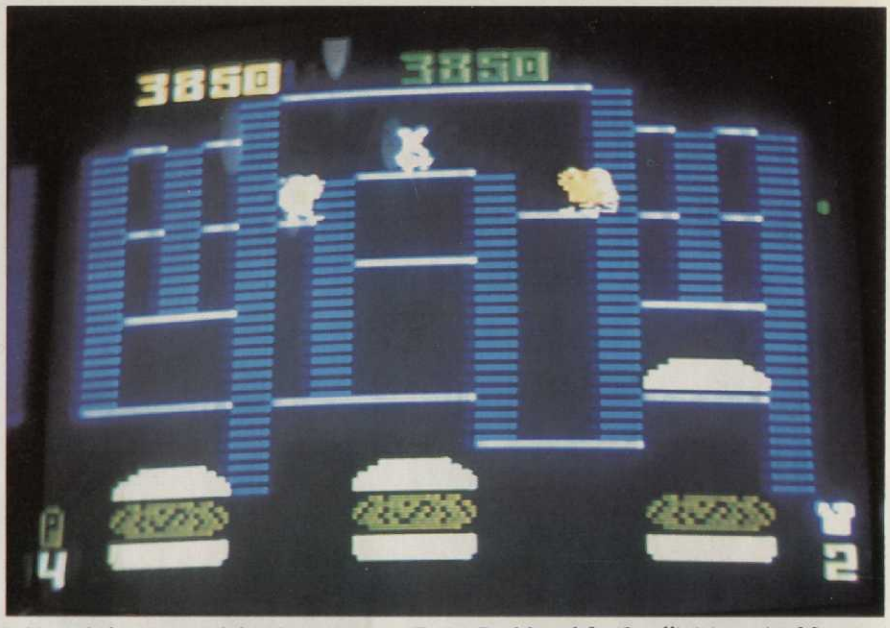
Downtown Vegas at night: A neon haven where just about anything (usually your money) goes.

Right: Plug eight carts into your VCS or Intellivision at once, thanks to Compro Electronics' Videoplexer ($59.95). Below: For gamers who like to think BIG, try playing on a Digital Technologies' projection TV.

Mattel introduced Intellivision II, a more compact Intellivision that features detachable hand controllers. Here it is shown with Computer Adapter (2K RAM, 12K ROM) and 49-key keyboard. Estimated total price: $300.

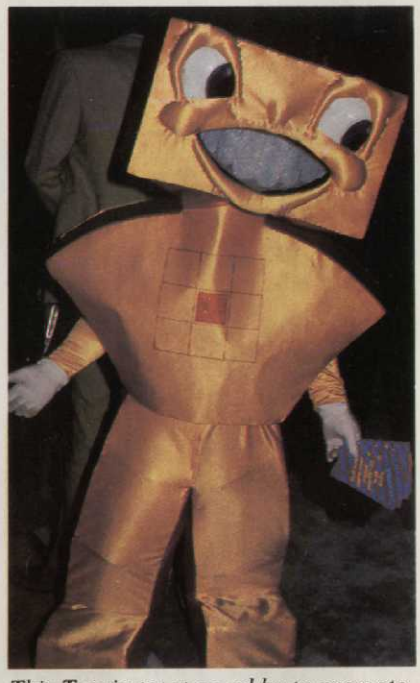


GCE's light pen for its Vectrex system lets you to draw on screen.



VG's pick-hit game of the show: Burger Time. By Mattel for Intellivision. An M Network cart will also be available.

Let 'er roll with Coleco's Roller Controller. When it arrives this year, a Slither cartridge will accompany it.



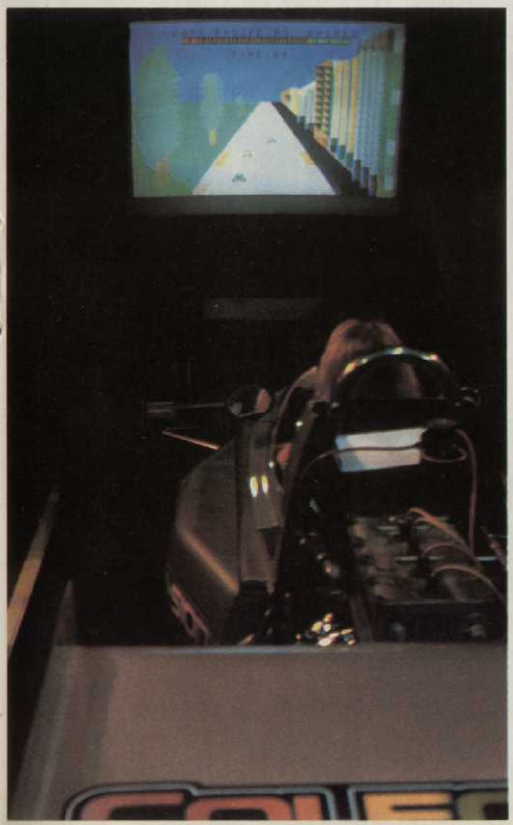
This Tronix tot stopped by to promote the company's Kid Grid game.

A Penthouse Pet gives our fearless photographer the eye.

Spectravision needed plenty of space to display its latest products. Those included: the SV-318 computer; a line of 14 peripherals and over 100 programs; software for the Timex 1000; the CompuMate add-on keyboard for the VCS ($100); three new VCS games; and Vortex, a 3-D game for several systems that comes with 3-D glasses.

Name This Celebrity spokesman and U.S. Games will send you a free autographed photo.

Vvrrrooom! Screee-eech! Coleco's Turbo set-up literally puts you in the driver's seat.

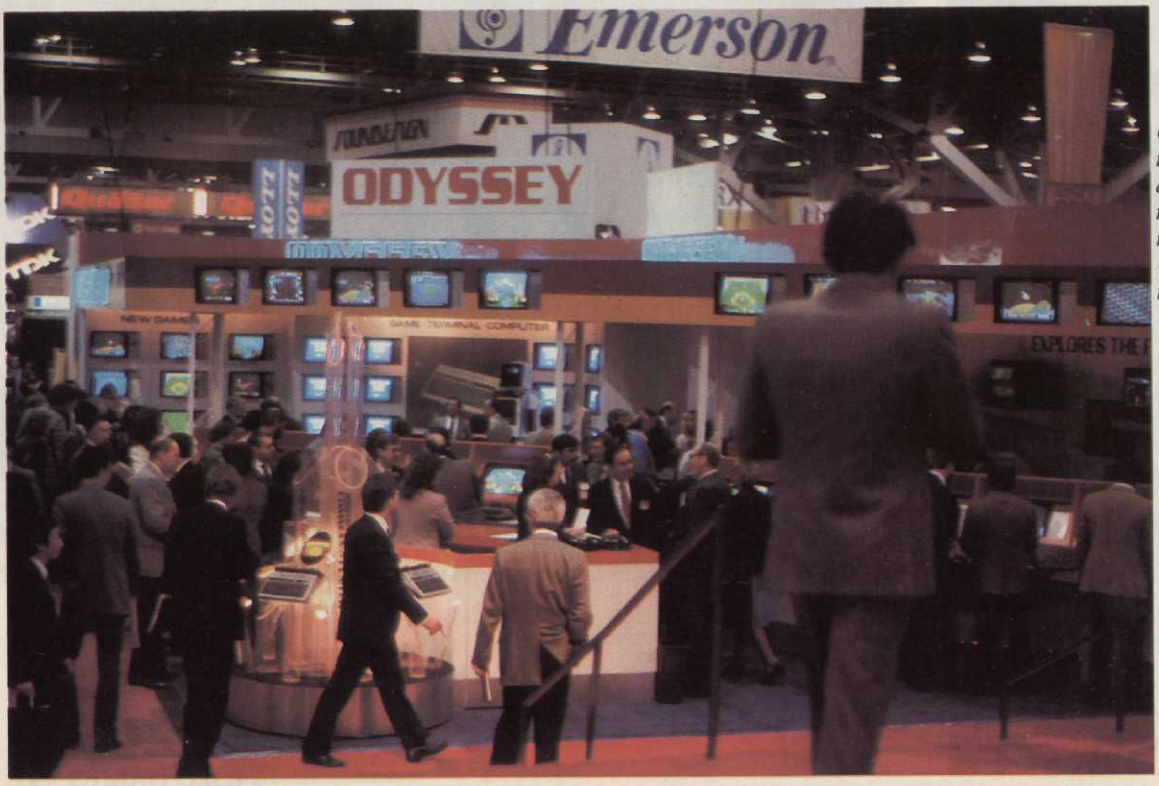


The VG gals with Associate Editor Perry Greenberg. Hey, who took this picture, anyway?

Who this fuzzy critter is nobody here seems to remember. But we thought he was too cute to keep to ourselves.

Coleco's Super Action Controller actually allows you to "feel" the action when you play the new line of games. As with the Driving Module, one game—Contact Baseball—will come with the controller. Contact Football is scheduled to follow.

One of the many adapter modules at the show was this Coleco-Vision expander ($70). The computer, Spectravideo's SV-318, by the way, has 32k ROM and RAM and 71 keys.



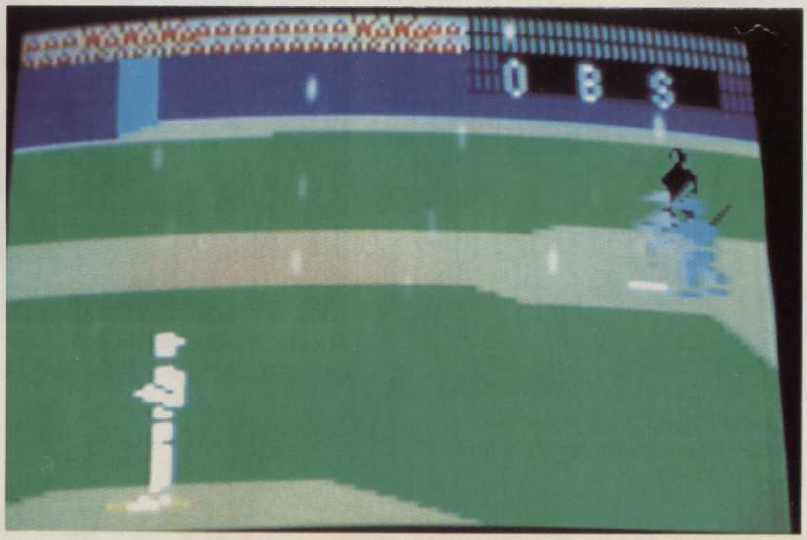
Odyssey's well-traveled booth displayed many new items, including the new Command Control system.

What do you get when you combine a game system, computer, and color TV? Ultravision (Price: $595.95, including headset and controls.)

Those well-groomed guys are Bob Gardner (l) and Jay Boda (r), our advertising manager and director, respectively. What a life!

Name this Company! U.S. Games had plenty to show and announce at CES, including its Name This Game promo (see page 75), and such upcoming games as Pink Panther, M.A.D. (Missile Attack and Defense), Gopher, Piece O' Cake and Eggomania.

*Twentieth Century-Fox's outpost, The Swamp, was the S*M*A*S*H of the show.*



To play this exciting baseball game on Intellivision, you need Mattel's Computer Adapter and Keyboard. If you're not into baseball, you can always turn to BASIC.

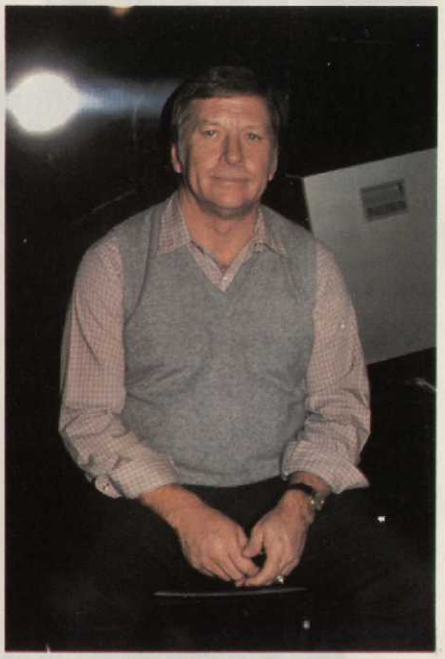
VG's leggy lovelies take a break by the booth.

Photo by Anne Krueger

*Jamie (Corporal Klinger) Farr announces 20th Century-Fox's M*A*S*H game at a press conference.*

ColecoVision's new baseball game not only provides superior graphics but also multi-screen visuals.

The video game companies were just a hop, skip and a jump away from one another. At Imagic, the horde tested out its new line of computer games, which included Demon Attack for the Atari 400/800 and VIC-20.



Mickey Mantle was on hand to help publicize Coleco's 3-D baseball game.

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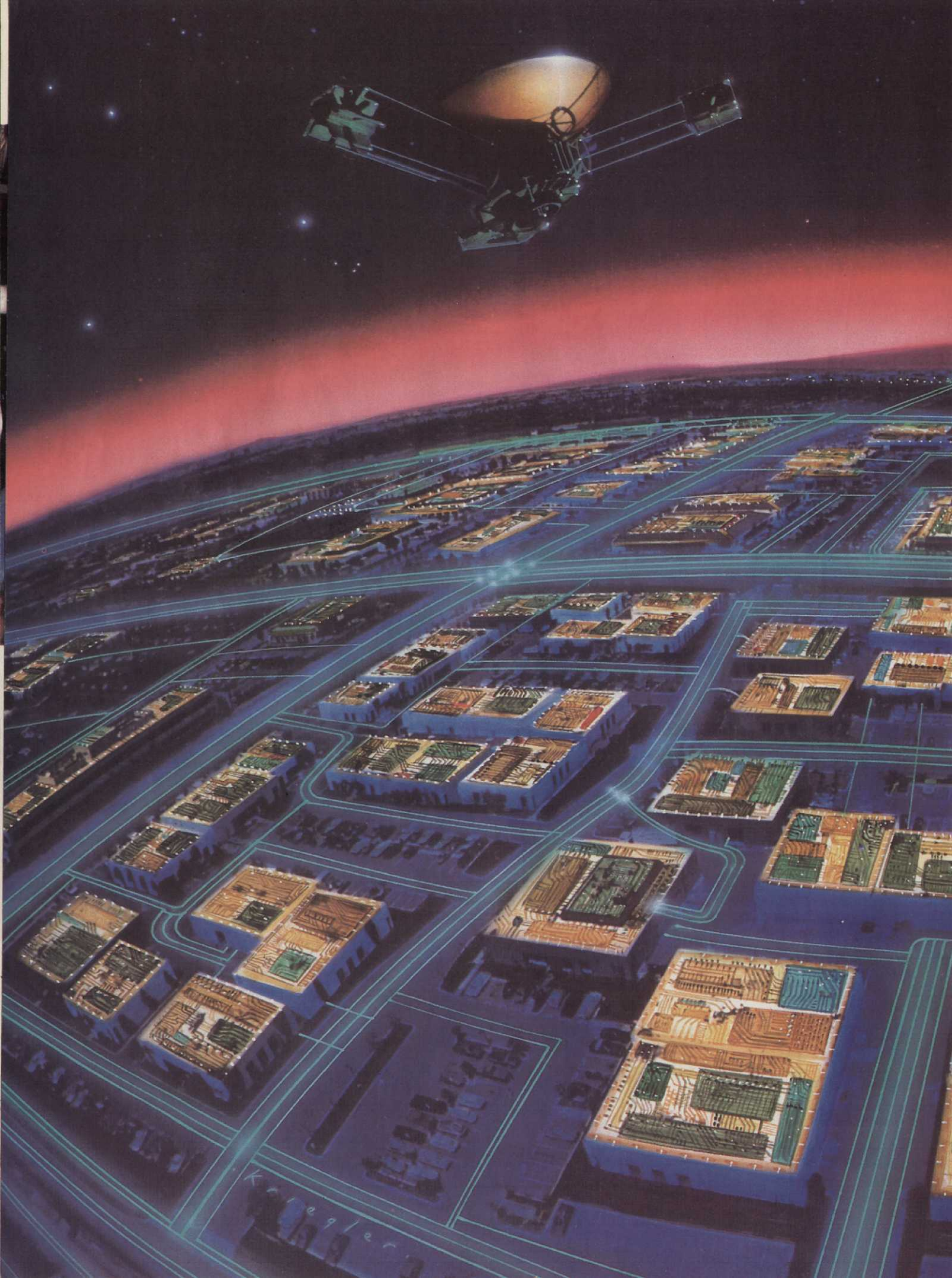
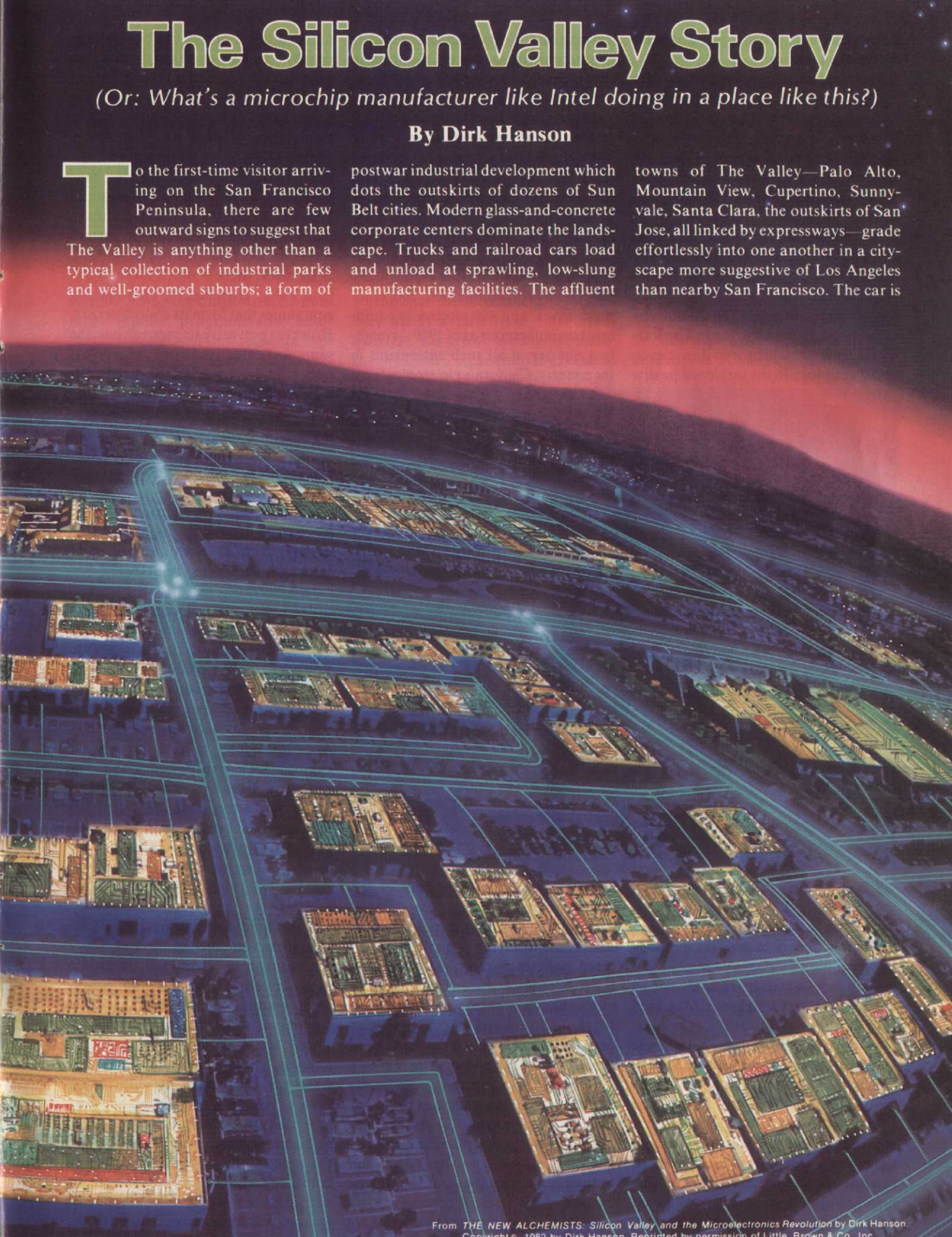


The Silicon Valley Story

(Or: What's a microchip manufacturer like Intel doing in a place like this?)

By Dirk Hanson

To the first-time visitor arriving on the San Francisco Peninsula, there are few outward signs to suggest that The Valley is anything other than a typical collection of industrial parks and well-groomed suburbs; a form of postwar industrial development which dots the outskirts of dozens of Sun Belt cities. Modern glass-and-concrete corporate centers dominate the landscape. Trucks and railroad cars load and unload at sprawling, low-slung manufacturing facilities. The affluent towns of The Valley—Palo Alto, Mountain View, Cupertino, Sunnyvale, Santa Clara, the outskirts of San Jose, all linked by expressways—grade effortlessly into one another in a cityscape more suggestive of Los Angeles than nearby San Francisco. The car is



From *THE NEW ALCHEMISTS: Silicon Valley and the Microelectronics Revolution* by Dirk Hanson.
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Illustration by Richard Kriegler

king here, and growth is horizontal rather than vertical.

But a closer inspection reveals The Valley as more than the ordinary industrial enclave. The profusion of Mercedes, Porsches, Peugeots, and Ferraris zipping from one town to another are obvious evidence of a prosperity level more akin to, say, Beverly Hills than to most industrial cities. The arcane logos and futuristic company titles affixed to the buildings make clear that whatever profitable products are manufactured here, they are not shoes or steel. The all but unfathomable lexicon spoken in The Valley is a language which describes science and technology in the service of profit.

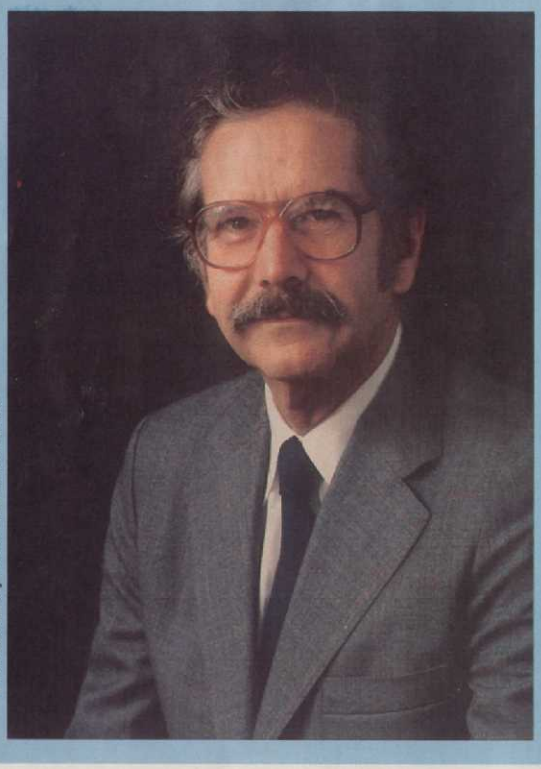


Photo courtesy National Semiconductor

Sporck left Fairchild in '67 to become president of National Semiconductor. His departure "shook the whole place," said one Fairchild manager. "We couldn't believe it."

CHARLES SPORCK

It is commonly said here that there is more gold in Palo Alto's sewage—(some thirty parts per million, a by-product of imperfect recovery methods in electronic processes where gold and other precious metals are used)—than the amount that touched off the gold rush at Sutter's Mill. It is just as commonly said that more millionaires have been created per square mile in Silicon Valley than in any other manufacturing center on earth, and there is no reason to doubt it. Of all the states which benefited so handsomely from the postwar transformation of American science and industry, the California explosion was unparalleled. What began in Silicon Valley with Frederick Terman and William Shockley had its counterpart in southern California in the form of the aerospace and defense industry—McDonnell Douglas, Rockwell, Northrop, Lockheed, and others. During the golden years from 1941 to 1945, the federal government pumped some $35 billion into California, and the state has garnered some 30 to 40 percent of all Department of Defense research and development contracts since then.

As a whole, California claimed 750 semiconductor companies, 200 computer firms, and 400 electronic equipment manufacturers as of 1980—roughly a quarter of all such enterprises in the country. California electronics firms account for about 25 percent of the state's manufacturing work force. Throughout the '70s the most spectacular manufacturing growth was centered right in Silicon Valley's Santa Clara County, where one worker in every three was employed by the electronics industry and where as many as forty thousand new jobs had been created in a single year. The Valley's employees have resisted sporadic efforts at unionization, such as the failed effort at Raytheon in 1971 and again in 1980. Profit-sharing plans and a shortage of qualified labor have kept the industry one step ahead of the Brotherhood of Electrical Workers.

Indeed, the perennial cloud of smog perched like a brown felt bowler over nearby San Jose attests to the fact that Silicon Valley is suffering the effects of *too* much growth. The traffic jams, the soaring cost of housing, the dwindling availability of land and the never-ending shortage of experienced engineers and production workers have cramped Silicon Valley's expansion of late, forcing companies to make future plans outside the state. The current recession has taken its toll as well.

In truth, there is much more to Silicon Valley than just the chip-making companies that form its collective core. However pervasive its innovations, the semiconductor industry represents only a single, concentrated slice of Silicon Valley high technology. It is an even smaller slice of California electronics, and only a fraction, though growing, of the nation's vast microelectronics and communications complex.

To begin with, the industry is linked intimately to several major research centers such as Stanford and SRI International (formerly Stanford Research Institute), as well as the University of California at Berkeley and Lawrence Livermore Laboratories across the San Francisco Bay. Near Silicon Valley are the "Steroid Hills," home of Syntex, the first producer of oral contraceptives, and other pharmaceutical companies. Sprinkled about the Bay Area are many of the new genetic engineering enterprises such as Cetus and Genentech. Every form of computer manufacturing is found here, from the large IBM-style mainframe systems to personal computers to the rainbow of small computers which fill every conceivable computing application between the two.

There are makers of electronic testing and measurement equipment. There are companies which sell electronic subsystems to OEMs (original equipment manufacturers), and there are companies which do all of the above. There are manufacturers of lasers, missiles, video games, and digital watches. Electronic manufacturing firms of various kinds—Amdahl, Hewlett-Packard, Memorex, the larger semiconductor companies—comprise the inner circle of the Silicon Valley landscape, and they are surrounded on all sides by production equipment makers, materials and packaging firms,

distribution companies, software companies, consultants, recruiters, brokers, investors, black marketeers, and high-technology thieves.

A brief and random list of the products produced by this hyperactive technological community would include mainframe computers, minicomputers, microcomputers, small computers, personal computers, hand-held computers, central processing units, office computers, hobbyist computers, business computers, computer memory systems, video games, high-stress environment bipolar programmable read-only-memories and shift registers, flip-flop gate arrays, guidance and tracking systems for the Defense Department, analog-to-digital converters, digital-to-analog converters, magnetic strip card readers, three-terminal adjustable voltage regulators, electrolytic capacitors, Schottky rectifiers, OEM cartridge disk drives, laser printers, modem dial hookups, multitasking attached processors, daisywheel printers, universal line multiplexers, floppy disk drives, add-on memories, add-in memories, bubble memories, charge-coupled-device memories, encryption sets, spectrometers, electron-beam micropattern generators, printed circuit boards, BIFET operational amplifiers, tuner circuits, in-circuit emulators, and bench-top IC testers.

They are all profitable machines and devices, dependent to one degree or another on the evolution of microchip technology. Silicon Valley, and the semiconductor industry in particular, is no bucolic haven for high-minded scientists and absentminded professors. Despite the striking atmosphere of informality for which these companies are known—the gold chains and open shirts, the casual office environments, the upper-management executives cheerily competing with production workers for unmarked parking spaces in communal lots—there is a carefully orchestrated structure designed to "maximize" technological innovation. Intel, for example, "measures absolutely everything," including post-8a.m. arrivals, for an atmosphere Robert Noyce (co-inventor of the integrated circuit and vice-chairman of Intel) has described as "casual, but not relaxed." It appears to work: In 1978, Intel threw a gala tenth-anniversary party for 7,000 employees at the San Francisco Cow Palace to celebrate the fact that while Intel's trio of original founders had hoped to grow a $100 million company in ten years, they actually had grown a $300 million high-technology company. That year, IBM ordered $25 million worth of Intel memory chips, the computer maker's largest outside purchase of memory chips ever, and a deal which had at least one Intel manager crowing that IBM now stood for "I Buy Memories."

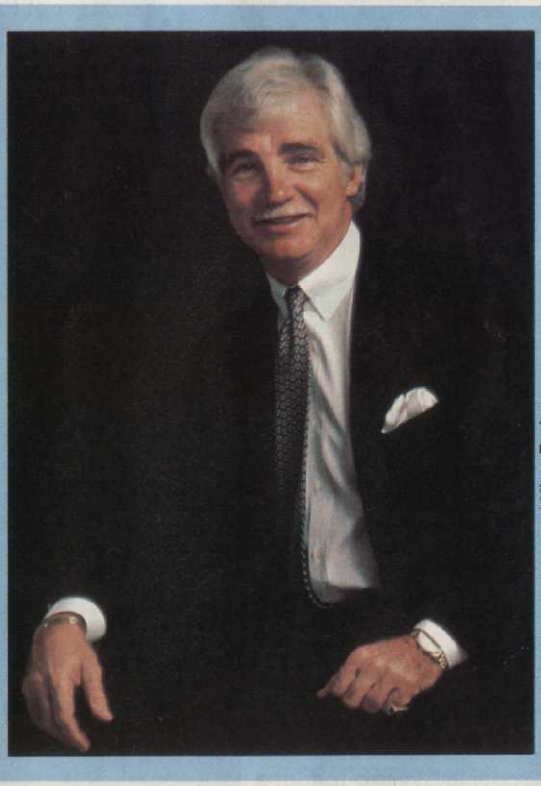
National Semiconductor, located only about a mile from Intel headquarters, has grown even larger under the irascible, cigar-smoking Charlie Sporck. National has demonstrated a canny commercial knack for producing every circuit imaginable at bone-cutting prices. A little farther up the road is Advanced Micro Devices (AMD), Intel's "leading follower" in state-of-the-art microprocessor circuitry and a pioneer in high-reliability chips. Helmed by the globe-trotting Jerry Sanders, AMD spends lavishly on advertising and public relations to reinforce its reputation as a young technology company on the move.

Sanders's carefully cultivated image as a stylish California entrepreneur is more than just personal whimsy. It is intended as a message to employees, to Wall Street, and to industry at large, that Sanders is a winner and AMD is a winning company. Company programs have included such displays as a $350,000 Christmas party and drawings for cars or cash. In one memorable case, a lucky AMD employee was awarded $1,000 a month for twenty years for the purchase of a new house. Aspiring engineers need look no farther than Sanders for a glimpse of the riches awaiting those who excel in Silicon Valley.

The Golden Age of the entrepreneurial engineer struck Silicon Valley much more forcibly than other American strongholds of electronics expertise. Boston's Route 128 certainly prospered after the war, as did the Texas-Arizona Sun Belt where the semiconductor industry was anchored by Motorola Semiconductor in Phoenix and the Texas Instruments (TI) juggernaut in Dallas and Houston. TI eventually grew to become the single largest producer of microchips in the world, but the pattern of spin-out company after spin-out company was far more evident in Silicon Valley than anywhere else. Why Silicon Valley?

Semiconductor people do not lack for explanations, and in truth there is no single answer. Lee De Forest (the inventor of the vacuum tube), Shockley (the "father" of the transistor), and Stanford University broke the ground

Sanders, another Fairchild "ex," spends lavishly on advertising and public relations to reinforce AMP's reputation as a young technology company on the move.



JERRY SANDERS

Photo courtesy Advanced Micro Devices

and helped establish the area as a place where electronic research and industry thrived in tandem. In the '50s and '60s, the prestige of Robert Noyce, Gordon Moore and others at Fairchild Semiconductor centered attention on Silicon Valley. The California climate, as mundane an explanation as it seems, was a factor as well. Fairchild recruited many engineers from electronics firms on Long Island and other outposts in the Snow Belt. Engineering talent, once honed in the labs of Silicon Valley, tended to stay in the area for new jobs and new opportunities. A technical clique had formed, and practically everybody in it had worked for or with everybody else at one time or another.

The magic circle for successful silicon chip companies, so the joke went, was the shadow of Stanford University's Hoover Tower. As one engineer described the job-hopping syndrome endemic to The Valley, "If you left Texas Instruments for another job, it was a major psychological move, all the way to one coast or the other, or at least as far as Phoenix. Out here, it wasn't that big a catastrophe to quit your job on Friday and have another job on Monday, and this was just as true for company executives. You didn't necessarily even have to tell your wife. You just drove off in another direction on Monday morning. You didn't have to sell your house, and your kids didn't have to change schools."

If any single ingredient guaranteed the success of Silicon Valley, it was the presence of venture capitalists eager to gamble on the growth potential of high-technology electronics. To the new and adventuresome money men of the sixties, an engineer with a Fairchild pedigree was a tempting bet. Defection after defection stung Fairchild as the new companies sprouted, but one departure more than any other signaled that there might well be more Fairchild talent *outside* Fairchild than in. In early 1967 Charles Sporck, a no-nonsense, hard-driving manufacturing wizard whose efforts had been central to making good on the commercial promise of planar integrated circuits, left Fairchild to become president of National Semiconductor.

Sporck, who had been general manager of Fairchild at one time, was lured away by Peter Sprague, a colorful venture capitalist. Young Sprague had inherited some $400,000 from Sprague Electric, the family firm, and set about buying worthy but financially ailing firms. After a number of successful money-making ventures, including a chicken hatchery in Iran, Sprague came across National Semiconductor, with headquarters in Danbury, Ct. In Silicon Valley, National owned a stalled Fairchild spin-out called Molectro. Sprague installed Sporck, and the engineers Sporck brought with him, as the head of the new, revitalized National Semiconductor in Santa Clara. National went on to become one of the valley's largest and fastest-growing companies. Said one Fairchild manager of Sporck's departure, "That one shook the whole place. We couldn't believe it. Sporck and all the manufacturing talent just blew out of there." By 1968 Fairchild's talented staff had been badly gutted as venture capital flowed into The Valley. "It got to the point," recalled a veteran of the early silicon wars, "where people were practically driving trucks over to Fairchild Semiconductor and loading up with employees." Fairchild Camera and Instrument's board of directors reacted with the best-known talent raid in the semiconductor industry's history. "All of a sudden," said another Fairchilder, "in walk eight or 10 guys with great suntans." The suntanned engineers were from Motorola in Phoenix, and they represented the best and the brightest semiconductor production talent that company once had to offer. When C. Lester Hogan left Motorola to join Fairchild, he took virtually the entire senior echelon of Motorola's semiconductor operation with him. The mass defection prompted a long, bitter, and rather inconclusive lawsuit, but "Hogan's heroes," as the team became known, was already in place with the charter of restoring Fairchild Semiconductor. Hogan's $120,000 salary, 10,000 shares of Fairchild stock and $5 million loan for options on an additional 90,000 shares prompted whimsical engineers to measure subsequent job transfers in units of Hogan.

Two final defections, then, spelled the end of the Fairchild Semiconductor dynasty in Silicon Valley. Jerry Sanders, salesman extraordinaire, was denied a promotion, exited the company with a year's salary as compensation, and, in typical Sanders fashion, moved to Malibu with his family and sat down to contemplate his future. At about the same time, Robert Noyce, joined by Gordon Moore and Andrew Grove, formed a new company to begin the semiconductor cycle all over again from scratch.

* * *

For Noyce, Moore and Grove, financing did not prove to be a problem. Some $2 million in start-up funds was quickly secured, in part from Arthur Rock, an astute and seasoned venture capitalist who knew less about electronics technology than he did about the character of successful managers. "It may shock a lot of people to find this out," Noyce later said, "but we never wrote a business plan, never wrote a prospectus. We just said, we're

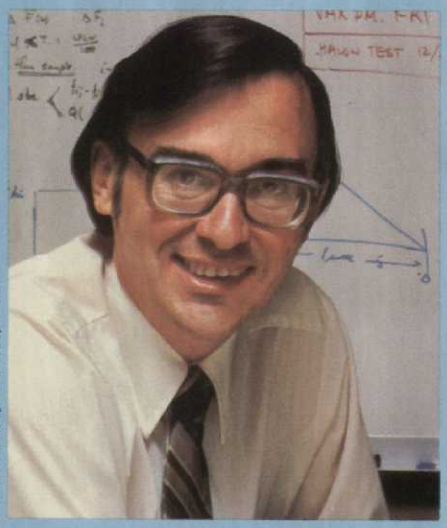


Photo courtesy Intel Corporation

"We were far too young and naive to see that the microprocessor would revolutionize the computer and electronics industry." Hoff was 34 years old at the time.

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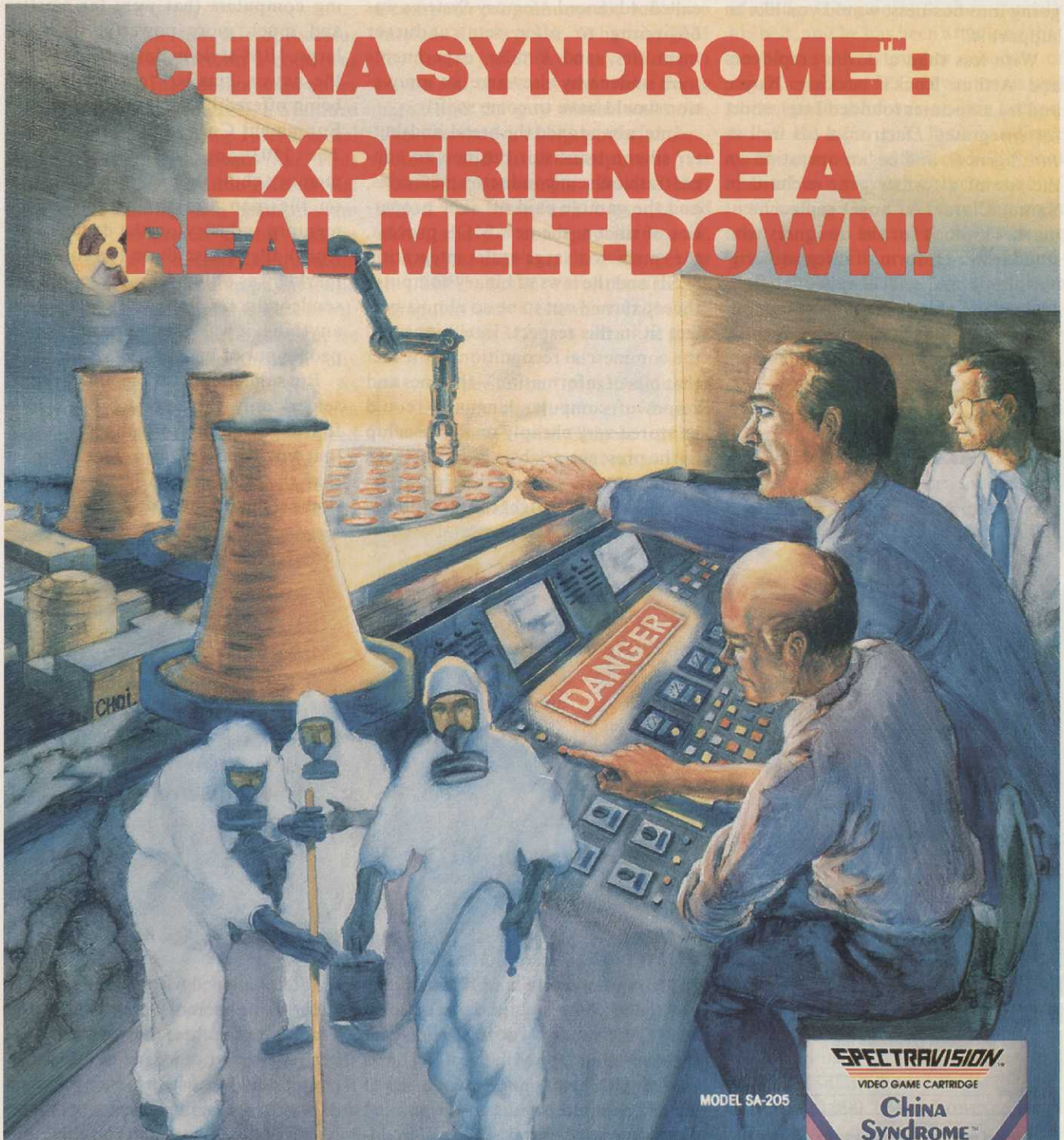

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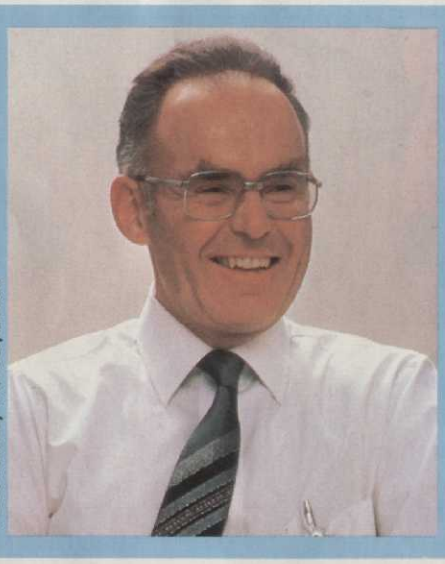
going into business; would you like to support it?"

With less than a dozen employees and Arthur Rock's backing, Noyce and his associates founded Intel, short for *Int*egrated *El*ectronics (as well as *Intel*ligence), and began operation on the site of a former pear orchard in Santa Clara. A huge replacement market loomed for the designers who standardized a form of integrated circuit they could sell cheaply enough to replace the older core type of computer memory. But Intel was not the only new company with this idea. A firm called *A*dvanced *M*emory *S*ystems was beginning to offer semiconductor memories, and similar experiments were under way elsewhere, so innovation would have to come swiftly.

Intel abandoned the bread-and-butter silicon transistor business to concentrate on semiconductor memories, and the gamble paid off. The properties of silicon, the new MOS process, the push for large-scale integration (LSI) and the laws of binary computer theory turned out to be an almost perfect fit in this respect. Intel pioneered the commercial recognition of the fact that bits of information—the ones and zeroes of computer language—could be stored very cheaply on a microchip as the presence or absence of electrons at microscopic sites on the chip.

In 1970, Intel caught the attention of the computer world, and Honeywell in particular, with its announcement of the 1103 random access computer memory chip (RAM). The Intel 1103 stored more than one thousand bits of binary computer data, and it pointed the way toward the possibility of building computers that were far smaller and much more powerful than the large, IBM-style mainframes, or even the newer, smaller "minicomputers" being offered by such firms as Digital Equipment Corp. and Data General. The 1103 and the more powerful memory chips that followed put Intel on the map and the magnetic core memory industry on the decline. Silicon Valley's assault on the computer market was only beginning, and if the semiconductor industry was good at anything, it was good at putting other people out of business.

But semiconductor memories represented only the opening salvo in a fourth revolution in computer design that would have an even greater impact than the vacuum tube or the transistor or the standard integrated circuit. Even as Intel struggled with reliability problems in the memory-chip production process, researchers there were designing yet another new kind of integrated circuit, and one which is today well on its way to becoming the most pervasive technological invention of this century—the microprocessor. The invention of this tiny calculating microchip was both a culmination of the integrated circuit concept and a final validation of the countertrend toward smaller, cheaper and more flexible computers. "In the same sense that the integrated circuit came along about 1960 to give Fairchild a real boost," said Noyce, "the microprocessor and the microcomputer concept came along in 1970 to give Intel a real boost. It was the kind of major innovation that obviously you can't plan, but we had created the kind of environment in



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Intel had to decide whether it wanted to become a computer company selling a new form of tiny computer that nobody knew much about yet.

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which it could occur."

The path to the microprocessor (MPU), or computer on a chip, was charted by an Intel design team under the direction of Ted Hoff, a Stanford standout hired during Intel's initial staffing campaign. Grads like Hoff had the older generation of electrical engineers shaking their heads in wonder. The integrated circuit was to solder-and-wire circuitry as quantum theory was to Newtonian physics, and integrated circuit diagrams were bewildering rat's mazes charting the course of electrons scuttling through tiny channels etched on a silicon chip. As Noyce began to realize, "Ted's idea was to say, let's build a standardized small computer that simulates any kind of logic, instead of doing a separate, custom-designed chip for every use. Then if somebody wants to program it as a calculator, that's fine, you can do that. And if somebody wants to make it into something else, that's fine, you can do that too. The real contribution was in having one standardized design for many, many electronic logic applications."

Since the military did not look to be the appropriate first market for the microprocessor, it took a while for Intel to decide just what manner of product it had, and what should be done with it. As Hoff summarized it, "Intel's business was semiconductor memories for computers, and the MPU represented a big departure. There were questions as to whether there was really a market for the microcomputer. I had people come to me and say, hey, look, the total market for the smallest computers around is maybe twenty thousand machines a year. If you're lucky, as a latecomer to the business, you get maybe ten percent of that. A few thousand chips a year is just not an interesting business."

Intel had to decide whether it wanted to become a computer company of sorts, selling a new form of tiny computer that nobody knew much about yet. Noyce, Moore and other Intel managers "had a number of well-justified fears," said Hoff. "How could Intel do computer software and support sales? You'd have to hire computer programmers, and at the time, you *couldn't* hire a computer programmer—not at a semiconductor house. Those were the days of big computers, and if a computer programmer did walk into Intel, he'd always ask, 'What size IBM 360 do you have?' We'd say, 'We don't have a 360; that's not what we're doing here,' and the guy would walk out. This was the era of big, powerful computers, and little computers just weren't that interesting. . . . Besides," Hoff added, "we were far too young and naive, and the concept was so new, that we just didn't see the evidence that the MPU would revolutionize the computer and electronics industry." Ted Hoff was 34 years old at the time.

* * *

"Up periscope," says D.C. as he scans the lunch crowd at a Santa Clara Chinese restaurant. In dozens of restaurants from Palo Alto to San Jose, much the same scenario is taking place these days as engineers and managers from Silicon Valley's two hundred-odd electronics firms gather for lunch, a drink or two and the casual exchange of information, gossip and job offers. D.C., a marketing manager with one of Silicon Valley's largest semiconductor companies, is both recruiting and being recruited—a not altogether unusual situation—and he means to discover whether any of his hottest prospects are present here today.

"This industry is desperate for top talent," he explains, digging a spoon into his bowl of wonton. In some other industry D.C.'s hair might be considered a touch overlong for his management level. But here in Silicon Valley, where technical élan is considered more vital than rigid adherence to a Corporate Look, nobody much cares, least of all his superiors. Just the slightest hint of a bulge is beginning to show beneath his belt, and he has been attacking that problem with a tougher schedule of tennis matches. D.C. loves tennis and chess, good solid one-on-one competition. He hates golf. D.C. is a fierce competitor, and in Silicon Valley that makes him a very valuable commodity.

"The big thing in recruiting right now is cash bonuses. We're giving good people a four- or five-thousand-dollar bounty just for walking in the door. This place has gained the reputation of being a business where management will cut you in on the action, all down the line. You take an electronics engineer with a master's degree, a little relevant experience, just starting out, and he'll come in at about $25,000. In just a couple of years and maybe another employer, he'll boost that to over $50,000 with stock options alone. Silicon Valley, as you know, is Porschland."

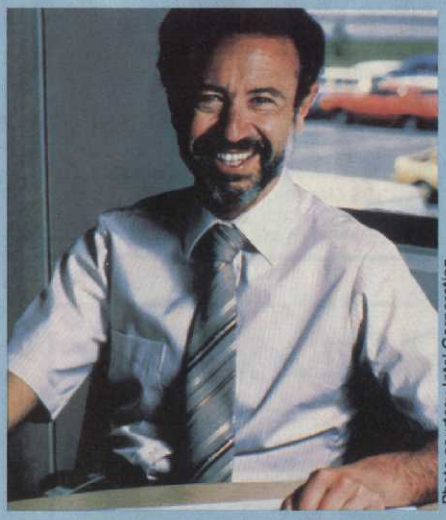
D.C. himself drives a Mercedes, and as for his salary, "it would be listed at about $120,000." That, however, is not the total yearly package. "Stock options are a wonderful thing," he says. D.C., who is 10 years out of college, has not yet hit a million on paper. But he is getting there.

D.C. pours himself a beer and nods at a couple of acquaintances. "It's so preposterous the way we do things here," he says with a wry smile. "It's like the Wild West, the way we knock guys off. All that's lacking is pistols at high noon. The competition in this business is unbelievable."

D.C. is short for Deep Circuit, which is how he leaves phone messages when he is feeling whimsical. At a semicon-

The invention of the microchip was both a culmination of the integrated circuit concept and the countertrend toward smaller, cheaper computers.

ANDREW GROVE



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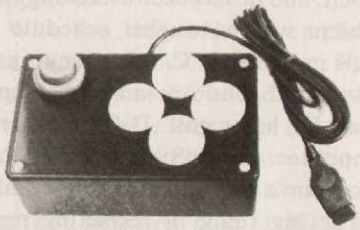

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ductor company half the size of his present one he would be a vice-president. As it is, he works for one, and dozens of engineers and technical people work for him. In addition to being a successful and aggressive young manager, he is a crack electronics engineer. Like many of his colleagues, he came up through the engineering ranks, making a name for himself in the development of high-tech circuits.

D.C. considers Silicon Valley the most challenging and prestigious high-technology playing field in the world. "People don't come to Silicon Valley for the pension plans. This is where the winners are. Job security and lifelong loyalty to a single company do not exist here, for the most part. You still see those attitudes in Europe and Japan, and even back East. It's fine for the steel industry, but it won't wash here." D.C. pronounces "steel industry" with scorn, the way some generals in Vietnam referred to the "Oriental mind." "Silicon Valley," he concludes, "is a curiosity that most people just don't understand yet."

Take D.C.'s friend "Harold," as a case in point. "Harold came to work for me out of the insurance business, which is very unusual. But he was a good manager and we had what was considered a fairly nontechnical slot for him to fill. When you've been in this business for 10 years you tend to forget that in a semiconductor company people can carry on a conversation for hours without resorting to English. It's just one long string of acronyms, numbers, computer mnemonics, other bits of computerese. Schmoo plots, piggyback cerdips, ion implantation, response time in picoseconds . . . it's unintelligible. Even the top technical gurus don't understand all of it. Harold was completely lost. Nothing in MBA school had prepared him for this."

Nor was Harold prepared for corporate mobility, Silicon Valley style, the essence of which has never been better expressed than by AMD's Jerry Sanders. In contrast to D.C., with his tennis shoes and casually knotted tie, Sanders is everybody's idea of what the successful California executive should look like—tall, tanned, elegant clothes, Rolls-Royce. Explains Sanders. "All a guy has to do here if he wants to change jobs is drive down the same street in the morning and turn in a different driveway."

Naturally, Silicon Valley is a fertile ground for executive recruiters, and D.C. is popular with many of them because he specializes in keeping his options open. Three years with the same company, he feels, is playing it pretty conservatively at his management level. You have to gamble and you have to tap into that all-important corporate fuel—momentum. He is also popular with recruiters because, in industry parlance, he is wired. It has nothing to do with reading the *Wall Street Journal* every day. When a rival company holds secret marketing seminars to discuss the design of an upcoming microchip, D.C. is not only likely to hear about it but to lay hands on a copy of the presentation. When somebody is about to jump ship, he knows who, when, and why. If there is an acquisition in the wind, he usually hears about it.

"Headhunters can get pretty creative," he says. "A lot of companies try to protect against predation by instructing secretaries to screen out their calls. One of them got to me by saying he was the president of the firm I was trying to do business with. When I got on the line he said there was this great opportunity at that company, and did I know anybody who might be interested? Now I knew and he knew that he was talking about me, but he never said so. The recruiting wasn't obvious."

It doesn't need to be. Bob Harrington, an investment vice-president with Dean Witter Reynolds in Palo Alto, explained that "The dynamics of this industry are very tricky. When the momentum shifts, it can shift in a big way. The defection of a single key employee can trigger an erosion of other employees, and that can cause you to slip behind in the technology. At times, companies that buy into the valley have a lot of trouble operating according to the way we do things here."

In general, D.C. does not use headhunters in his own talent searches. "I just hired one guy from a competitor," he says, "and I'm using him as my personal recruiting agency. He's nosing around a little at his former company." D.C. smiles, adding: "And I think he just might bring me a few of his friends." ▲

Journey to the Center of EPCOT

By Susan Adamo

Guests enter the Sensor Maze through the Rainbow Corridor, a tunnel brightened by 150 neon tubes. The tunnel assigns each person one of five colors which follows them through the exhibit creating the effect, notes Braverman, of people "pushing rainbows." Following the Corridor is Image Warp, which contains mylar mirrors that have been stretched over loudspeakers, vibrated and hit with a strobe light. "Essentially, what it is," he says, "is an electronic version of the old funhouse mirrors." Also in the Sensor Maze is a voice-activated light sculpture called Lumia that responds to the frequency and volume of your voice.

Walter Elias Disney had a vision: an experimental prototype community of tomorrow (aka, EPCOT). "It will be a community of tomorrow that will never be completed," he theorized shortly before his death in 1966, "but will always be introducing and testing and demonstrating new materials and systems. And EPCOT will be a showcase for the ingenuity and imagination of American free enterprise." Last October, 16 years later, the EPCOT Center of Walt Disney World opened its doors in Orlando, Fla.

The $800 million Center has two basic themes: Future World, a constantly evolving blueprint for tomorrow, and World Showcase, a global panorama with world's fair panache. One of the pavilions in Future World is the Kodak-sponsored Journey into Imagination. Computer hobbyists and artful gamers take note—the area titled Image Works allows EPCOT guests to paint by computers (on the Magic Palette), conduct a symphony (Electronic Philharmonic), and star in any one of three short films (Dreamfinder's School of Drama), among other interactive activities.

"It's a playground of the future," crows Barry Braverman, manager of show design at Disney and chief designer of Image Works. "A place to stretch your creative muscles."

For inspiration, Braverman reached back to the '60s, when sculptors were bringing new meaning to their artform through interactivity and high-tech artists began toying with lasers. In either case, participation was the

key. For example, the idea for Stepping Tones (see photo at right) was suggested by art pieces that had been done 20 years ago in which people changed environments as they walked through them. Also, the pin screens, devices that can be manipulated to form different qualities of lines, which are also found in Image Works, were designed by Ward Fleming and first exhibited years ago in San Francisco's Exploratorium.

The Electronic Philharmonic, however, has its roots strictly in entertainment. "The idea for that one," Braverman explains, "came from Jerry Lewis' old comedy routines when he'd be sweeping up in the concert hall after a performance and couldn't resist getting up on the stage, pretending to conduct the musicians. They weren't there, of course, but you'd still hear all the instruments.

"Most people think that they're not imaginative," he adds. "They think that only a few select people are. Our belief is that everyone has the capacity, especially children. If we can learn to unlock (our imaginations), we'll see the world in new ways and really enrich our lives. *That* is Image Works' overreaching purpose."

(Continued on page 60)

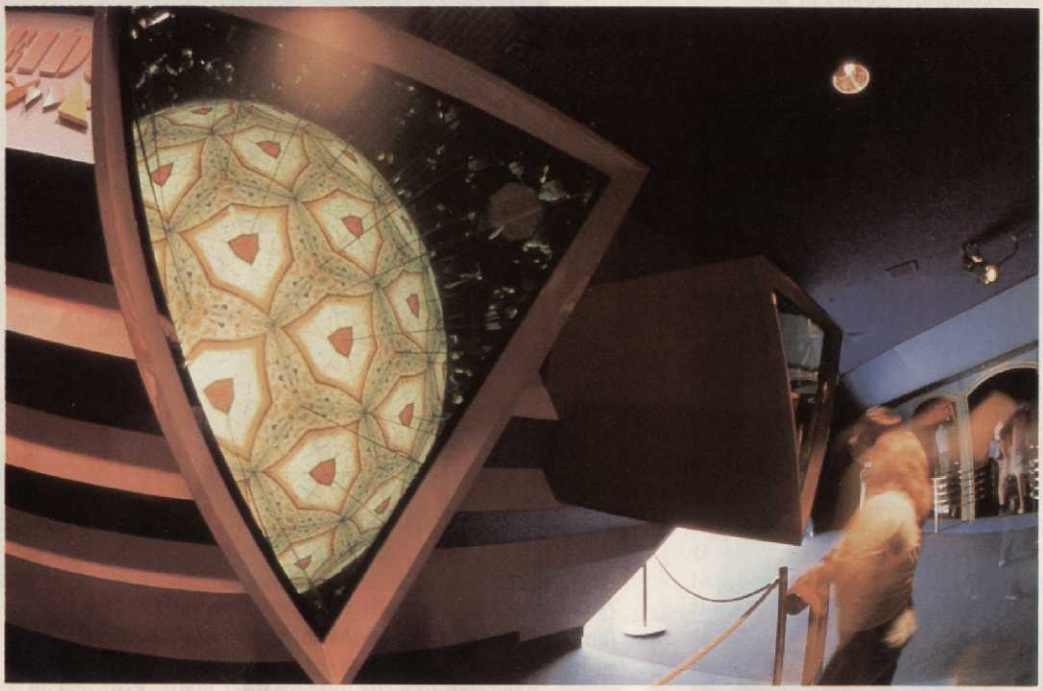
One of the most popular features in Image Works is Stepping Tones. Guests make music by stepping on the geometric shapes and colors that are set in the floor of the room. The electronic notes, which are stored on digital chips, are grouped according to type such as percussion, string and vocal sounds. "They're all very electronic yet harmonious in composition," says Braverman. "People walking and jumping around in this room create an electronic symphony that is all in tune."

Sperry-Univac's Compute-A-Coaster game, like others found in the Epcot Computer Central foyer, is a business-oriented computer game that demonstrates how data processing technologies aid the business world. In this game, which shows how a computer-assisted design system works, girders and other structural elements of a roller coaster ride flash on a color terminal. The player selects elements and places them in sequence, using a touch-sensitive screen. The system then displays the player's design, inserting such requirements as support struts and tracks and some background color, including skies and mountains, and, finally, a rider's eye view of the roller coaster's course.

Lost For Words, one of the video computer games in Bell Labs' Future Com, demonstrates the company's isolated word recognizer. The object of the game is to guide a computer-generated mouse through a random maze by speaking commands into a microphone. The computer recognizes five commands—up, down, right, left and go—in seven languages—English, French, German, Spanish, Italian, Japanese and Russian. In a technique called "Dynamic Time Warping," the computer compares the pattern of the spoken word with the word patterns previously stored and chooses the closest match.

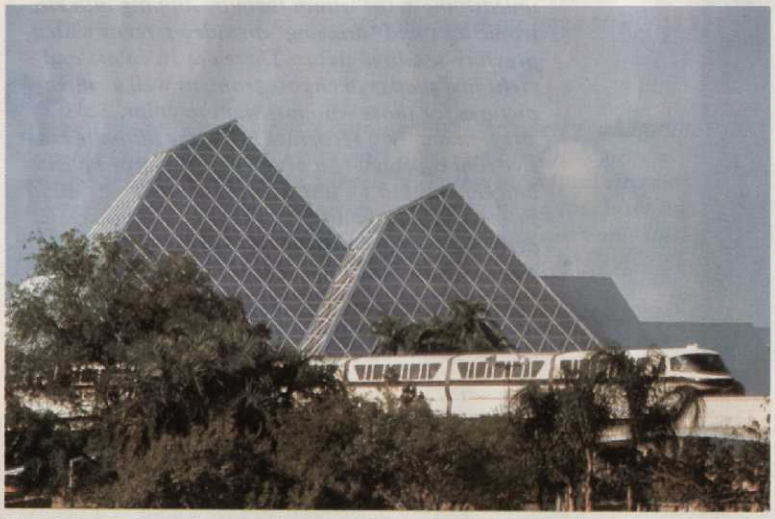
The inspiration behind the 14 Magic Pallettes in Image Works came from the telestrators used by TV newsmen to write over weather maps. Visitors can unleash the artist within them by dipping into electronic inks and "drawing" on video screens with a pressure-sensitive stylus. There are 16 colors and eight line shapes to choose from, as well as three pictures for those who just want to color. Says Braverman: "We recognized that the ultimate creative tool is probably a pencil and paper or pallette and canvas, but we also recognized that we had to be clever about limiting the amounts of choices of activities because we couldn't have people there for three or four hours trying to paint masterpieces. We tried to come up with things that would yield results pretty quickly and easily and yet still be able to be manipulated in different ways by different people."

You'll know you're in Sperry-Univac's interactive area when you come face-to-face with SMRT- 1, a life-sized robot which plays guessing games with EPCOT guests. Participants choose numbers or animals displayed above the robot and then, using headphones, respond to the yes-or-no questions SMRT-1 poses. After some clever calculations, SMRT-1 delivers a correct answer—unless, of course, "it does not compute."



There are four larger than life (3 ft. X 3 ft. X 3 ft.) kaleidoscopes inside Image Works. As in the smaller versions, these utilize mirrors. Unlike those, however, these are operated with handlebars.

Below: Bell Labs' Chip Cruiser is an Interactive Electronic Display that illustrates some of the hazards involved in the manufacture of silicon chips. The player must protect the surface of his chip from particles such as dust, hair, and water vapor by zapping them with a laser cannon. In order to protect the chip from static electricity, the player must press another button which sets up a shield.



The Journey Into Imagination pavilion as it appears by day. To house this "creative playground of the future," the architects chose two pyramid-shaped crystal structures, giving it a "high-tech" cathedral feeling.

(Continued from page 58)

Braverman realizes that Image Works may not appeal to the average, hooked-on-Pac-Man video gamer. "I'd like to believe that, in the long run, people would get tired of shooting at things and be open to more creative types of activities using new technology," he says. "Perhaps, this is the direction video games are heading—but who knows?"

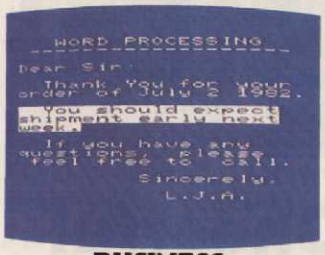
Braverman, meanwhile, is working on prototype games for the Tron arcade that will be housed in another Future World pavilion, CommuniCore, by late-'84. "We're looking at the same thing everyone is looking at," he concedes. "More realistic displays, different audio systems, 3-D flight simulators. Instead of looking at a screen, you walk along the projection surface, for example, and play the games with your whole body."

Working for Disney offers him a unique advantage, Braverman says. "We can do things in EPCOT in a one-of-a-kind speculative way that the industry can't do for obvious economic reasons. We also don't have to compete in the marketplace."

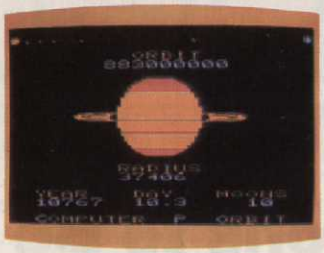
CommuniCore already invites guests to interact with some of the latest technological achievements. In EPCOT Computer Central, sponsored by Sperry Univac, visitors can communicate with SMRT-1 (a robot who plays question-and-answer games), construct a computer-generated roller coaster and, from a glass-enclosed balcony, view computer technicians at work on the systems that run the Center. And Bell System's Future Com exhibit allows you to learn about the manufacture of integrated circuits and travel through a video maze via vocal commands—both by playing actual games.

Hopefully this *VIDEO GAMES* pictorial tour of EPCOT is the next best thing to getting you there. ▲

IF YOU OWN A COMMODORE COMPUTER, YOU KNOW IT CAN DO ALL THIS.



BUSINESS



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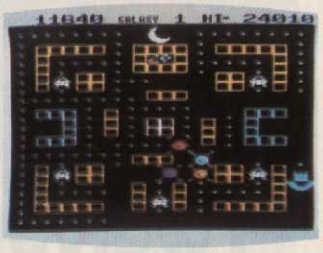
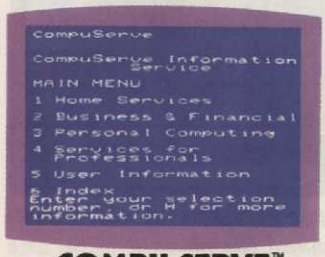


GAMES

BUT DID YOU KNOW FOR ABOUT $100, YOU CAN ALSO GET IT TO DO ALL THIS?



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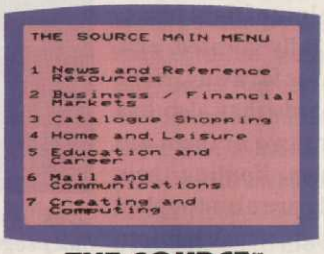

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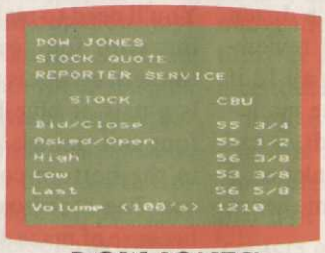
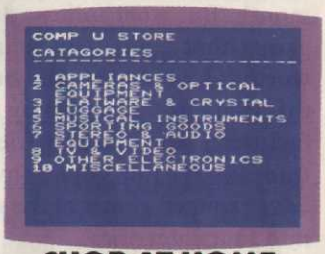
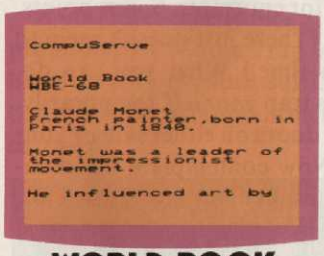


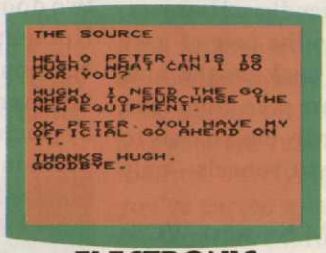
DOW JONES®



SHOP AT HOME



WORLD BOOK ENCYCLOPEDIA



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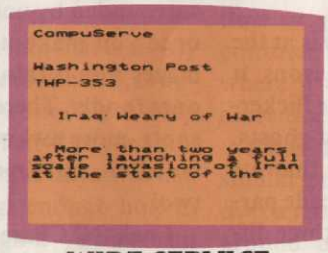

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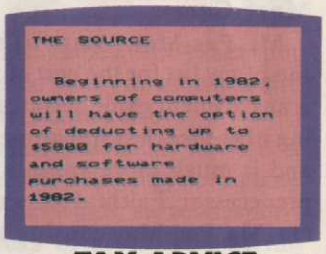

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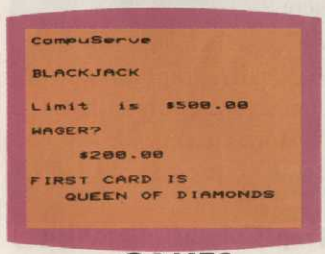

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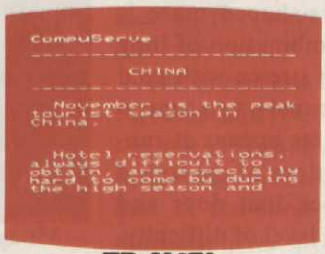

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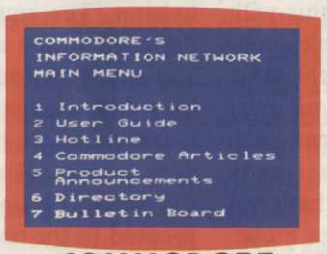
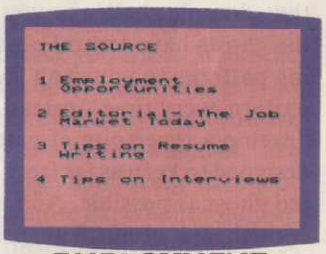


COMMODORE INFO. NETWORK



EMPLOYMENT OPPORTUNITIES

The screens at the top of the page show a few examples of how versatile the VIC 20™ or Commodore 64™ can be with the addition of Commodore software.

The screens below them give you a few examples of how much more versatile they can be with the addition of a Commodore VICMODEM.

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SOFT SPOT

Twelve More Reasons to Be Cheerful

By Phil Wiswell

I usually have to look pretty hard to find more than six or eight new game cartridges to review in any given month. But what follows are a dozen games that I not only found review-worthy, I would actually buy all 12 if they were not provided by the manufacturers. And that, my friends, is extraordinary. For your convenience, I have grouped games of the same genre into four categories.

Maze Games

Ms. Pac-Man (Atari/VCS) is at the top of my list for the best of reasons. It is an excellent game despite the flickering of the fearless foursome of ghosts, and is much more appealing than its predecessor. Faithful to its arcade parent, Ms. Pac-Man consists of three different mazes and each must be completed twice before the next appears. If that doesn't challenge you, this will: the ghosts have several possible opening patterns so you can't use the same pattern every time. Instead, you must develop a repertoire of patterns, each designed to keep as far from the speedy red ghost as possible. And if that's not enough, the bonus fruit prizes move about the maze, causing all kinds of complications.

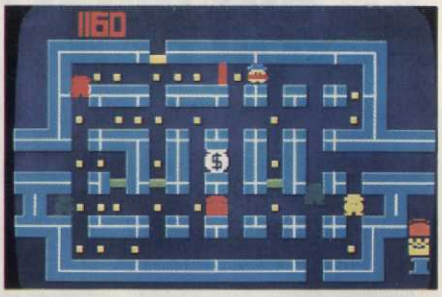
The mazes—dissimilar enough from those in the original—render your old patterns useless. The first two boards are pink and by far the easiest to clear. You'll need to make lots of tight turns, but with four centrally-located exit tunnels, escape is never far away. Next is a pair of blue boards that also has four exit tunnels, but two of them are in the bottom corners, limiting their use. The blue boards are also tougher because of maze design, which has lots of places where you can easily become surrounded by unfriendlies. However, once you make it to the pair of gray mazes you'll think back on the blue ones fondly. There are even more tight spots, more awkwardly placed dots to be eaten, but *less* exit tunnels—only two!

Kudos to Atari for Ms. Pac-Man, flickering ghosts and all.

Lock 'N' Chase (M Network/VCS) is a maze/chase arcade game of cops and robbers, originally made for Intellivision. The square-shaped maze is designed with a combination of long and short corridors strewn with gold bars, four escape tunnels, two central locations where prizes appear at random, and a locked door at the top of the maze. To unlock that door and proceed to the next level of difficulty, the robber (that's you) must clear the screen of gold bars. When that happens, the door automatically opens.

Unfortunately, all of this happens with four police officers on your trail, and they are not the dim-witted type. The only defense against them is your ability to place locked doors behind you, forcing the cops to take alternate, hopefully long, routes to track you down again. Press the action button and the last door you passed automatically closes. (Only two doors can be closed on the screen at once.)

According to the rule book, you should be able to trap a cop between two doors for enormous bonus points. Not quite. (There just doesn't seem to be enough time.) What you can do, however, is trap *yourself*, temporarily, by placing doors on either side of your position. Now contemplate the situation for about five seconds. This helps, but it doesn't exactly give the cops pause. Picking up a prize does—for about one second, giving you a slight jump on them.



Lock 'N' Chase will make you wish Mattel had programmed Pac-Man.

Lock 'N' Chase is a superior maze game both for its graphics and its tough challenge. And guess what: the four cops do *not* flicker! Makes you wish Mattel had programmed Pac-Man.

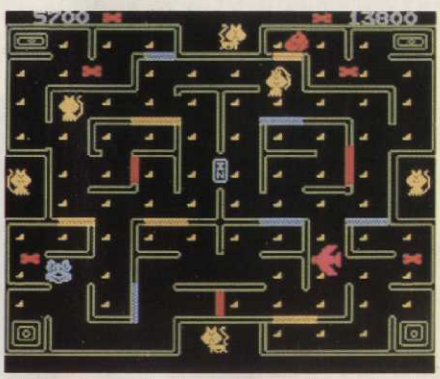
Mouse Trap (Coleco/ColecoVision) is probably the most meticulous arcade conversion of the three. In this game of cat, mouse and dog, you (the mouse) are pursued by four cats through a maze containing bits o'cheese that must be consumed, Pac-Man style. The four dog bones stashed in the corners serve as a different kind of energizer: You can store up as many dog bones as you like before using the power of the first one. Hit the dog key on the overlay and you instantly transform from a snivelling rodent into a menacing canine, capable of chewing up little kitties for bonus points.

The maze design is identical to that

of Exidy's coin-op version, complete with yellow, blue, and red doors scattered throughout. Three corresponding keys open and close the doors. Use them to trap cats or just to clear a path through the maze. Another defense against the cats—as well as the hawk that you randomly encounter after level one—is the escape hatch (marked "IN") in the center of the screen. Enter it and you are sent to any one of the four corners. (Don't use it unless all four corners are clear of cats.)

The graphic appeal of Mouse Trap is enhanced by the prizes—things like safety pins, diamond rings, and musical instruments—that appear at different spots in the maze, one at a time. You can get six prizes in the first maze, seven in the second, and so on up to a maximum of 15 prizes in a single maze. Leave at least one piece of cheese in the maze and go after the prizes one by one until no more appear. (This will increase your score handsomely.) Then, and only then, eat the last cheese dot and advance to the next level.

If you like maze games at all, you'll probably love Mouse Trap. And if you liked the arcade game, suffice it to say there are no disappointments in the cartridge.



Coleco's meticulous Mouse Trap is the cat's meow.

Shoot-'Em-Up Games

Even though we've seen hundreds of games in this category, Atari has come up with a pair of new cartridges to give the cynics a run for their money. Imagic's bestseller Demon Attack prompted many critics to question Atari's ability to produce fun, graphically-appealing VCS cartridges. With Phoenix and Vanguard, Atari has proven them wrong—at least for the time being.

Phoenix pits your ground-based cannon against five waves of airborne aliens. There are eight enemies in each of the first four waves (versus 16 in the coin-op version), the same number as in Imagic's Demon Attack. The animation in the first two waves isn't very impressive—the enemies are rather abstract. But by the third and fourth waves you'll recognize them easily as the birds they are. Even Imagic's "demonic" birds are not this well crafted.

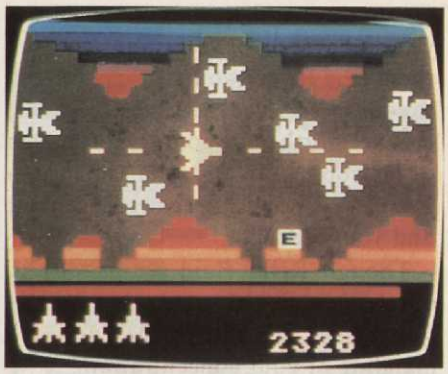
Aim directly at their bellies. Hitting a wing—even both wings—isn't enough; the bird soon regenerates these parts and dives at you again. The point value for each bird increases the closer it gets to your cannon, so you may want to wait for them to dive first. If they get too close, it's time to employ the protective force field (pull down on joystick) around your cannon. Since it only lasts for one-and-a-half seconds and cannot be activated again for three-and-a-half seconds, use it wisely. Another drawback is that you're frozen until the force field disappears, so be prepared to move as soon as it does.

Now for the best part of the game—the fifth wave. Here you go head-to-head with the mothership that is slowly descending toward your cannon, dropping bombs all the while. First, chip away the red "underbelly" of the ship, then the revolving blue layer. When you've carved a large enough hole in the latter, fire through it—a direct hit wipes out the alien pilot, a source of big bonus points, and returns you to face all five waves again at a higher difficulty level.

The important differences between Phoenix and VCS Demon Attack is the mothership and the force-field feature. Imagic's Intellivision version, the best of the three games, also has a mothership wave. (See review in March *VG*.—Ed)

Vanguard, yet another arcade reproduction from Atari, is strictly an eye/hand coordination exercise. So many different types of vessels approach and try to ram your ship, it's practically impossible to nail every one of them. (I can't even nail half of them.) The graphics are short of remarkable, but the colors are not. At certain points, the effect is as if you're playing through a rainbow, which can be rather pleasing to look at.

What sets Vanguard apart from other shoot-'em-ups is that the screen scrolls either from left to right or from top to bottom, depending on which of the eight zones you're in. Your ship can move (right up to the edges of the screen) *and* fire (press the button and nudge the joystick in the desired direction) in all four directions—a really nice touch.

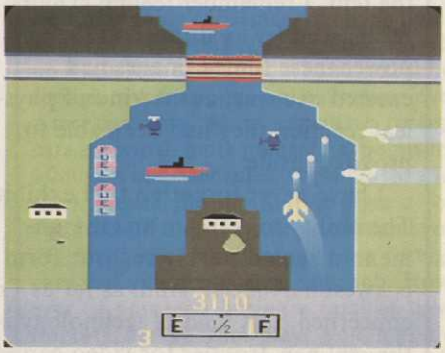


Betcha can't nail even half the ships in Atari's Vanguard.

Unlike most shooting games, Vanguard is not overly repetitious. Each zone offers a different challenge, whether it be blasting a barrage of jets and 'copters or navigating a narrow channel. You can lay back and take your time or go full tilt, and, best of all, continue a lost game at the exact spot where it ended. Only problem is the score does return to zero.

River Raid (Activision/VCS) is a similar game in which you pilot a plane over a river that winds, narrows, splits around blocks of green land as the screen scrolls from top to bottom. If you hit land or anyone of the horizontally-moving enemies (tankers, helicopters, and jets), you crash. While the tankers and 'copters are fairly easy to avoid, the jets, especially when you are forced into a narrow channel, are tough to dodge. Shooting them, of course, is the more expedient solution.

Now and then you encounter bridges that must be destroyed and fuel depots that I'm not quite sure what to do with.



Take a tour of duty in Activision's boat adventure, River Raid.

On the one hand, they replenish part of your fuel supply if you simply fly over them (the longer you stay over them, the more fuel you get); on the other, they are worth more points than tankers or helicopters. In any event, be sure to keep an eye on the fuel gauge—run out and you lose a life.

Though River Raid graphically is not as attractive as some other Activision games, it's fun to play and demanding of your concentration.

Pursuit Games

The three games in this category aren't really maze games, yet they all have a maze-like quality about them. They all require you to dodge things and go after others in *pursuit* of some goal. Hence the title, "Pursuit games."

My favorite of the three is **Dragonfire** (Imagic/VCS), one of the few home cartridges I've seen that could be made into a fantastic arcade game. Dragonfire alternates between two different scenes. In the first, you (a little guy) must run across a drawbridge, right to left, without getting bowled over or knocked down by the fireballs that move horizontally, left to right, across the screen. You begin inside the right turret, where you are immune to fireballs that file out of the left turret. Jump over fireballs using the action button and duck under the high ones by pulling down on the joystick. This sounds easy, but it's a difficult task to perform.

Once you make it to the left turret, you immediately find yourself in the second screen, where a beautifully-detailed dragon is patroling back and forth across the bottom of the screen. Again, you start off in a safe spot—a little hut in the bottom right corner. Scattered around the screen are eight to ten objects, brightly painted against the black background. They have different point values, ranging from the ten-point jug, lamp, or goblet to the 400-point diamond or crown. The idea is to gather up the booty (simply by touching objects) without getting fried by a blast of hot air courtesy of this most unfriendly dragon. The moment you make your move he heads for you, lifts his snout, and spits fireball after fireball. If you're not always on the run, and I mean up, down, left, and right, you'll burn off all of your seven lives in no time. But if you manage to grab all the treasures without being barbecued, an escape hut opens out of the blackness in the upper left corner. Enter, and ye shall find yourself back on the drawbridge.

Coleco's Turbo Expands Your Horizons

In the summer of 1976 I stood with a crowd of people in the center of a huge tent at the California State Fair in Sacramento, surrounded on all sides by an awesome, colorful, filmed image of the Grand Canyon in all its rugged splendor. Over a loudspeaker, a voice told us that we were seeing the Canyon as if flying over it in a helicopter. Suddenly we were sliding between maginificent rock formations, dipping and rising and circling above. As we moved, I felt my stomach sink, and had the need to hold onto something. Things were getting scary. It appeared, at a few points, that we were about to crash, but somehow we'd rise to safety at the last possible moment. I got tense. There were some yelps from the crowd. When it was over, and we left the tent, I remember feeling genuine relief. And I was stunned at the power these filmed images had exerted over me, at the kind of physical reaction they had been able to provoke inside.

I have never forgotten that exhibit. The ability to recreate an environment in such a starkly realistic form is awesome indeed. And, as far as I'm concerned, this kind of technology is the real new frontier for video games in the '80s—games that faithfully reproduce an environment that you can interact with and thus experience real emotions and sensations—fright, exhiliration, relief, whatever. To me, this is where the industry must head, for the possibilities of 3-D and simulations are endless.

Turbo, the Sega/Gremlin arcade mainstay, does not transport us into the mind-blowing fantasy world of Space Invaders, Asteroids and Berzerk, nor does it create the cute charm of Donkey Kong or Pac-Man. After all, it's a driving game.

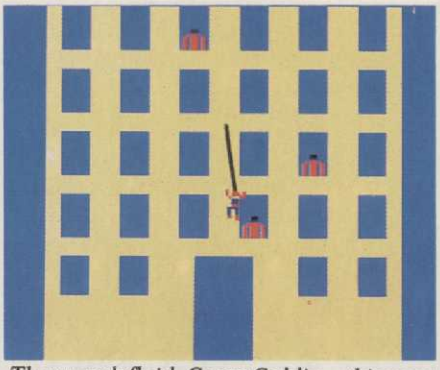
But Turbo may be a harbinger of things to come. It has a startling 3-D flavor—creating the effect of things shooting directly *at* you from a distance, instead of just inching *toward* you in horizontal and vertical movements. The third dimension here is crucial: It creates a realistic sense of depth, and gives you a hint of feeling the velocity of the car and the wrenching motion of negotiating a sharp turn. Just a hint, you understand, but enough to be a refreshing break from the standard game menu.

I can't say enough good things about Dragonfire. The animation is wonderful, so good it's even fun to watch your guy get nailed by a fireball. One suggestion: Play this game with a trackball if you have one or are thinking about buying one. Only then will you really be able to take on the dragon in later rounds.

Spiderman (Parker Brothers/VCS) is a deadly game of tag played out between Spiderman (you) and his enemies: criminals who appear at random in the windows of the building you're trying to climb and a green goblin who guards the super bomb at the building's pinnacle. Other bombs are also scattered about, ready to blow.

The screen follows you up and down the face of the building. To climb, you must activate your web fluid by pressing the button and simultaneously pointing the joystick. This sends out a line of fluid. You want to aim for the actual building—not a window, a criminal, or blue sky—so you can proceed onward and upward. Otherwise you fall, which can only be stopped by sending out another web and trying to

(Continued on page 66)



Thugs, web fluid, Green Goblin—this must be Parker Brothers' Spiderman.

Coleco's Turbo for its own system is a faithful translation of the arcade hit. The cartridge is accompanied by the ColecoVision Expansion Module No. 2, which provides you a steering wheel and a foot-pedal accelerator. In the game, you are thrown into an anarchic, anything-goes, road-race scene in which your competitors could care less about smashing your car to bits and leaving you a helpless heap of scrap on the side of the road.

The 3-D effect is excellent, and the cartoon-like graphics are beautiful. You start out in a main city drag lined with what appear to be modern, geometrical, office buildings and sleek condominiums in stunning orange, green, and white colors. You then speed along a boulevard and burst out into the country on a variety of straightaways and curving roads, sometimes even hitting hilly terrain. At one point, you're on an open highway and a dark blue mountain range is silhouetted against a bright, light-blue sky. There's also a treacherous beachfront drive that is one huge sharp turn. Then comes the real shocker: a pitch black tunnel bordered with bright purple colors. Later, there's an icy stretch during which it's difficult to control your car.

Besides the graphics, the appeal of Turbo is in its fundamental tension: You must move fast to pass cars and rack up points, but you can't be too macho. If you crash, you lose precious time and points. So learn when to hit the accelerator to the floor and when to pull back a bit. Unless you're real quick, a game of chicken here won't work. Be careful around curves and save your daredevil routines for the straightaways. And watch out for all sorts of things that can cause you to smash up: an ambulance that can easily run you over; oil slicks that can throw you out of control; cars shooting up from behind; and the sides of the road, which can send you into a spin.

If you're short on cash, the price of the Turbo package—$60—may be too steep. And Turbo has its problems: As gorgeous as the various scenes are, they get a bit routine after awhile. More variation is needed. Also, I think, the game would be better if it put the player inside a car instead of having the player maneuvering it from above. But the module might end up a good investment since it will be used for a number of upcoming ColecoVision driving and racing games.

Turbo is a good game with great graphics. Hopefully, it will be fine-tuned and improved so that some day we might experience *exactly* what it's like to compete in a daring road race.

—David Smith

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Feedback #6 Results

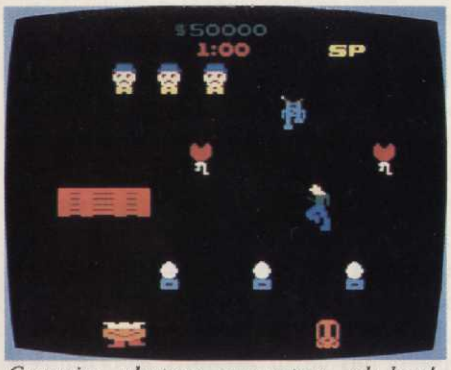
Favorite department: Tie between Soft Spot and Blips; **Favorite feature:** Tie between *Easy Home Computer* and Playing Games With Cable; **What I'd like to see less of:** Tie between computers/computer games and advertisements; **What I like to read most about:** Tie between TV-games, arcade games and computers/computer games; **Favorite arcade game:** 1) Centipede, 2) Donkey Kong, 3) tie between Pac-Man, Tron, and Donkey Kong Jr., **Favorite TV-game:** 1) Pitfall, 2) Pac-Man, 3) tie between River Raid, Donkey Kong and Frogger; **Favorite computer game:** Star Raiders; **Best new game concepts:** American Steelworker: Joe, Donkey Kong-style, climbs up levels with a hammer in hand, smashing foreign cars for points while jumping over American cars. More expensive foreign cars are worth more points (100 points for a 280-ZX and Mercedes; 10 points for a Le Car). Reach the top and you get a job application; finish another screen and you get hired. Keep smashing those foreign cars and you get to keep your job. However, if you miss hitting a total of three imports during gameplay, you lose the game *and* your job! After that, it's time to play the Unemployment Line Game; *VIDEO GAMES* video game.

grab a piece of the building as you plummet down.

The criminals, who like to cut your web line if it crosses over them, are worth points. Capture them by sending out a diagonal web, which lets you swing up to the height of the web line like it was a vine, rather than simply scaling it like a rope. Touch the thug and he's yours. The same technique can be used to defuse the bombs.

Spiderman is a game with a famous name that combines solid graphics with a simple objective. I think it's pretty amusing.

In **Journey Escape** (Data Age/VCS), the much publicized rock video game, you control a human-looking character who must weave and dodge his way through a myriad of falling objects. The screen scrolls from top to bottom. You begin with $50,000, which you will slowly but surely part with whenever you come into contact with groupies (little hearts that sometimes come in pairs or triplets and will cost you $300, plus slow everything down) photographers (light flashes that run $600 per collision), shifty-eyed promoters ($2,000!), and stage barriers that



Groupies, photogs, promoters—oh boy! Make the great escape in Data Age's Journey game.

simply slow down your progress and are difficult to approach on the run.

But you are a one-man band on the run as you only have a minute to get each member to the escape vehicle that only appears if you've been moving at top speed. Usually you make it with a few seconds to spare, which are added to the next character's minute. The object is to guide all five band members to the vehicle in this manner.

You do have some help: ever-loyal stage roadies and the occasionally-faithful manager. By touching one or the other, you're enabled to move at top speed through any barrier—as long as the Journey music which is embarassingly out of tune, is playing. The only solution to this is to turn the volume down, or even better yet, off.

Head Games

This group consists of three games that are absorbing, demanding, and highly entertaining, yet they require almost no eye/hand coordination. They do require some basic maneuvering, but the majority of strategy must be performed upstairs (hence, the title "*head* games") for a good score.

Riddle of the Sphinx (Imagic/VCS) is one of my favorite games. The Prince, your character, finds himself on the timeless sands of Egypt, searching for objects that will unlock the secrets of the gods and allow him to reach his final destination: the Temple of Ra, where his treasures will be stored. Egypt is, of course, only as wide as the television screen, but scrolls north and south depending on which way you move. You'll encounter typical desert scenery like camels, palm trees, and oasis ponds (remember where these are because thirst is a main factor

(Continued on page 77)

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COIN-OP SHOP

Was There Life Before Space Invaders?

By John Holmstrom

These are the good old days for video games. There are more great-looking, great-playing games than ever before. Years from now, you'll be telling your grandchildren about the games you played as a youngster. "Donkey Kong," you'll say, "now there was a game! They just don't make 'em like they used to!"

But as you sit there reminiscing with your grandchildren, don't forget about that earlier, more primitive video game era known simply as "pre-Space Invaders." Perhaps you celebrated when most of the antiques that cluttered the arcades in the late '70s were finally replaced, but now that they're gone, it's impossible not to get nostalgic. After all, those ancient coin-ops were the forerunners of today's sleek, modern games.

Back then, pinball was still king of the arcades. To attract attention, video game companies were forced to scratch and claw for their share of headlines. Sometimes they came out with some pretty bizarre games. Is there anyone out there who doesn't fondly remember Exidy's **Death Race 2000?** Possibly the most infamous video game of all time, its foul theme was attacked by everyone from *60 Minutes* to *Reader's Digest*. In case you've forgotten, Death Race was a driving game in which you, the driver, ran over "gremlins" for points. What disturbed responsible adults (while simultaneously delighting demented drivers of all ages) was the bone-chilling screams that the gremlins would emit as they were crunched by the car. (The word on the street was that those little things scrambling all over the screen were not "gremlins" at all: They were little old ladies!) Rumor has it that Death Race 2000 originally had been named Pedestrian, and that a sequel had been planned for it called Super Death Race. But it seems that the novelty of running people over faded quickly. Too bad. Just imagine if Sega could combine Death Race with Turbo! Now there's a great sequel game!

With the *Jaws* phenomenon in the '70s came shark games. In **Shark Attack** (produced by U.S. Billiards circa 1975, and reappearing as Deep Death by Pacific Novelty circa 1980), the player was a shark who sought out swimmers splashing around in the water, having fun. Suddenly, they'd see the shark and panic if caught. They'd scream in pain, which was followed by a bloody video image on the screen.

Another rather tasteless game was **Bazooka**, where you blew up enemy vehicles and lost points for hitting Red Cross personnel. As it turned out, most players aimed for the good sa-

An inspired game if there ever was one, Crazy Climber never made it to the top.

maritans, which didn't do much for your score, but nevertheless left you with the satisfaction of a job well-done. A game called **Desert Patrol** had a similar attraction: You'd lose points for shooting down parachutists, but you'd do it anyway because their death screams were the best part of the game.

I'm beginning to miss the anything-goes philosophy of the '70s. With manufacturers relying more and more on tried-and-true formulas you'll never see a Death Race nowadays. Still certain elements from these early videos live on in the games we play today—even if they weren't entirely successful the first time around.

Remember **Frogs?** (No, not Frogger, even though Sega designed both games.) In Frogs, the player controlled a frog with the idea being to jump around on a lily pad and catch flies with its long tongue. Not only did this game spawn the incredibly successful Frogger (if not literally, at least figuratively), it was responsible for the numerous bug-catching frog games now available for TV-game systems.

Digger, another Sega/Gremlin game, was the first game to feature a digger who could create its own maze on the playing field. Released in July 1980 Digger has to be considered the great granddaddy of the digging games—from Dig Dug to The Pit to Mr. Do!

Another game that incorporated digging into gameplay early on is also widely recognized as the first of the "climbing games." **Space Panic,** introduced by Universal in February 1981, was about a man who is trapped in a spaceship with a bunch of crawling bug-monsters. He had to dig holes in the floor, trap bugs in the holes, and fill them up before the bugs could climb out. Extra points were scored by dropping the bugs on each other or down extra flights of stairs. There were different challenging mazes of stairs and floors, and a timer that measured the oxygen in the room. The idea was to kill all the bugs before the oxygen ran out.

Space Panic also featured the first aliens with distinct personalities. There were three different creatures: the slow, dumb red "monsters"; the faster, more intelligent green "bosses"; and the quick, crafty white "dons." Space Panic preceded Crazy Climber, Donkey Kong, and the many other climbing games. Recently, the Space Panic theme resurfaced in Broderbund's Apple Panic and will soon be released as an actual license by Coleco. It would be nice if this would cause a Space Panic renaissance in the arcades, but I doubt it. The game was just too weird.

Nichibutsu's **Crazy Climber,** a video game cult classic if there ever was, also appears to be on the comeback trail. Recently, a hand held license by Bandai was made available and I've heard Atari will soon release a cartridge based on the game. For those of you who may be drawing a blank, Crazy Climber was the first game to feature a King Kong-type ape. In this most unusual game, a man had to climb up the side of a scrolling skyscraper while funny-looking people popped out of windows and dropped flower pots and bottles on his head. The climber also encountered a giant bird that dumped

The Boring Truth About Board Games

Video game merchandising is big business, and big video games turn up as bubble gum cards, t-shirts, and TV shows. The latest gimmick is converting them into board games. The problem with the three Milton Bradley coin-op board games reviewed here—Frogger, Pac-Man, and Donkey Kong—is that they're boring. They end quickly and don't rely much on skill or strategy.

Pac-Man is a witless version of the famous maze game. Each player gets a plastic Pac-Man that's supposed to be able to eat marbles off the playing board. (None of the ones I tried with my game could, though.) Each of the "two-to-four" players throws two dice, moving his Pac-Man and one of the two ghosts. If you land a ghost on another player's Pac-Man, that Pac-Man must return to his "safety zone," as well as forfeit two marbles. The game goes on until the board empties; the player with the most marbles wins. Although I always thought it would be interesting to encounter a Pac-Man contest in which two players could play at once, this game changed my mind.

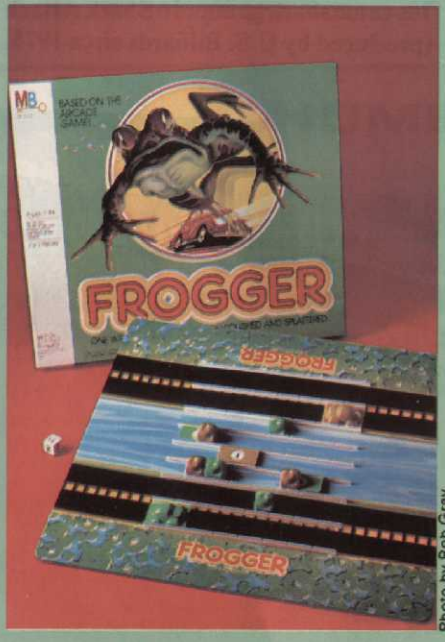

Photo by Rob Gray

Go to the head of the riverbed with Milton Bradley's Frogger.

Donkey Kong is another disappointment. The major problem with this board version is that there's too much work and not enough action. Not only must you move Mario up the ladders and ramps, you're responsible for moving a bunch of barrels down and a fleet of fireballs up the ramps and ladders. Once again, all of this is determined by a roll of the dice. Donkey Kong is probably the best of these three games, but that's not saying much.

Frogger is the worst of the lot. Two players compete to see who is the fastest at getting three frogs across the roads and swamps to the other side. Frogger's rules are particularly confusing. I recommend that you make up your own if you ever try playing this game.

I don't think it matters, though, whether these games are good or bad. Board games are for little kids, and the fact that they're playing Pac-Man or Donkey Kong might be enough to make them happy. Besides, the boxes for these games are beautifully designed. What more can you expect?

—John Holmstrom

Shark Attack, formerly Deep Death.

eggs and bird doo all over him, girders and cinderblocks that could knock him off, an electric sign that could electrocute him (or merely psychedelize him), giant billboard signs that could push him off, and, finally, King Kong!

To me, Crazy Climber was an inspiring game to play. Within its silly story was the theme that a man, no matter how much bird doo is dropped on him, no matter how many creeps throw flower pots on him, no matter how many big apes try to knock him down, can pursue his dream and make it to the top afterall.

Cinematronic's **Starhawk** is less of a classic, though it was among the first 3-D-type games. Starhawk was a science fiction-shooting game that came out at about the same time as Space Invaders and vaguely resembled the Deathstar sequence from *Star Wars*. Back then, the first-person perspective, which has become commonplace since the release of such games as Turbo, Pole Position, and Buck Rogers, was a radical innovation. Although it relied on vector, or line, graphics, Starhawk achieved very realistic effects. The Zaxxon-like hand grip controller was also a first of its kind.

Speed Freak was to Turbo what Starhawk was to Buck Rogers. Manufactured by Vectorbeam in 1979, it was a first-person, vector driving game. (General Consumer Electronics' Hyperchase for its Vectrex system is a more recent example of this game.) Speed Freak was a step above Atari's Night Driver since it featured a clearly delineated road and traffic.

Another notable archetypal game was Midway's **Gunfight,** which had two cowboys shooting at each other from either side of the screen. These two weird little guys would travel up and down, hiding behind cacti, until one player fell dead. This game was a lot of fun to play with a friend since you got to kill him or her, even if only theoretically.

Gunfight inspired a rash of similar games, such as Sheriff and Shootout, and could be considered responsible for Berzerk.

Seawolf, also by Midway, if played today, would be called a cheap imitation of Sub-Roc 3-D. Sub-Roc and Battlezone "borrowed" the controls (a periscope with firing buttons) from Seawolf, but that's about all they stole. In most early video games, more attention was paid to building a flashy cabinet than the games themselves, which were often weak.

Seawolf and Gunfight were among the most popular videos of the "pre-Space Invaders" era. So was **Space Wars,** the coin-op game of 1978. Without Space Wars, a vector game that featured left, right, forward, fire, and hyperspace (the first ever), plus a panel of buttons for game modifications, including "bounce back," "expanded universe," "negative gravity," and "black hole," Asteroids (the game of 1980) could never have happened. Although it looks crude by today's standards, Space Wars was a giant step forward in the bad old coin-op days.

One thing is certain: Video games will never see another time like the '70s. The games that decade produced are the dinosaurs of the computer age. Someone should preserve these relics before they're lost forever, perhaps even start a video game museum. I hate to think that I will never again be able to play Death Race 2000. ▲

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HARDSELL

A Watchful Look at the Timex 1000

By Dale Archibald

In the mid-60's, four musical moptops, leading a legion of other musical moptops, descended on the U.S. mainland. They called it the "British Invasion." The '80s has seen another British Invasion, and this time in the form of a little black plastic device with honest computing abilities and a price tag that can only be described as bloody unbelievable.

The Timex 1000, ne Sinclair ZX-81, was designed by Clive Sinclair, an Englishman. It had already sold 500,000 units around the world when the Timex Computer Corp., which had been manufacturing the system in Scotland for Sinclair, brought it to North America. By the time it hit the U.S. shores last summer, with the highly affordable suggested retail price of $99.95, its name had been changed, its memory doubled, and it came accompanied by a selection of peripherals. Still, the 1000 retained its no-frills flavor: no fancy color graphics (the display is black-and-white only) and no realistic sound effects. This system is one that's seen and not heard and, so it seems, best seen on a cheap black-and-white set.

The Timex 1000 made a name for itself among thrifty consumers who didn't want the computer era to pass them by. This, the cheapest of the low-end personal computers, quickly became the fastest-selling model in its category.

Hardware

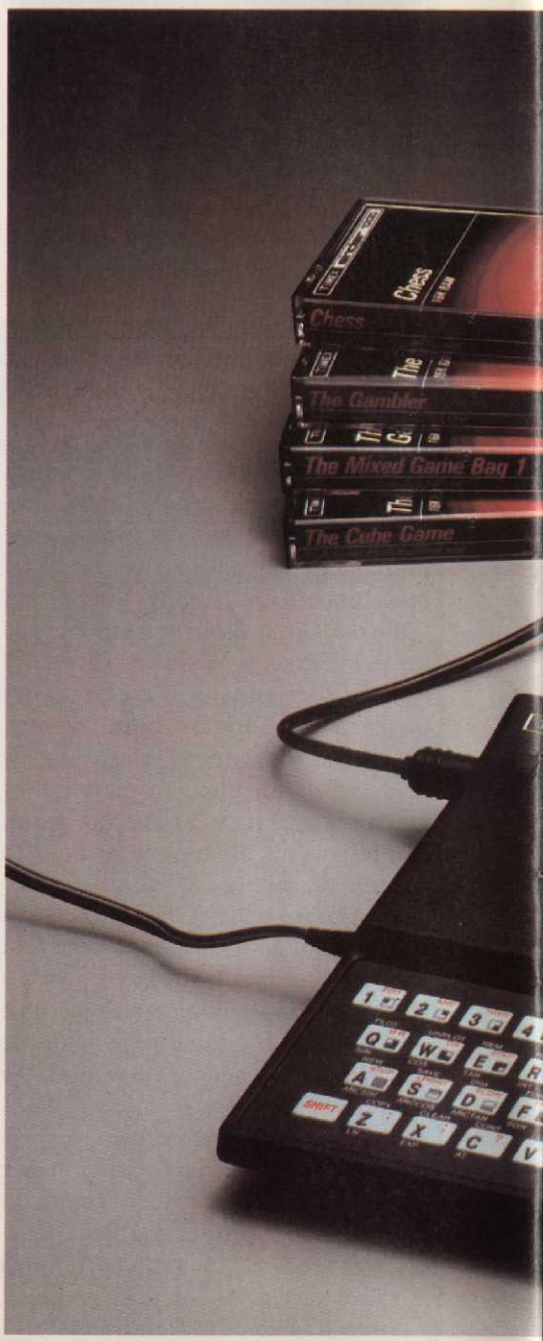
How tiny is tiny? The entire console measures a sleek 6½ inches wide by 6¾ inches deep. At its highest point, it stands 1½ inches tall. It weighs a very portable 21 ounces.

The standard 1000 contains a keyboard so small that it's sure to make you error-prone when computing or playing games. The touch-sensitive plastic board contains 40 key locations, some with as many as five functions, depending on what mode is being accessed. (For instance, the letter "F" can be used to type F, to call up one graphic symbol, to input the command "FOR," to move to a FAST speed or to sign.)

At present, there are no compatible joysticks available for the system, though at least one is scheduled for '83, so gameplayers are at the mercy of the keyboard. This is okay if the game's a slow one, but not for some of the faster ones. The flat, matte finish on the 1000 and the close proximity of the keys require the player to keep his eyes on his fingers as well as the TV screen which, even for the most nimble fingered, proves to be a serious handicap. A tip: One way to help differentiate the keys required for gameplay is to fasten paper, felt, or sandpaper onto the individual keys with a temporary adhesive.

The 1000 contains 2K of Random Access Memory (RAM), which allows for a storage capacity of about 2,000 letters, numbers, adders, subtractors, and other programming instructions (about two typewritten pages worth). By the time the computer uses what it needs for operating instructions, there's only a few hundred precious characters left to continue. That's why one of the first peripherals on every 1000 owner's list is the Sinclair 16K RAM adapter, now selling for around $39.99. For those who want even more memory, Memotek sells a 64K add-on.

There are four plugs on the left side of the 1000. One is for accessing the built-in RF modulator, which changes the computer's output to a radio frequency when connected to the television. The 1000's cable is only a couple of feet long, so chances are you'll have



to get a longer one. Another connects to a transformer, which converts AC power into the power needed to run the 1000. There's no ON/OFF switch here; just disconnect the chord from the AC transformer jack. The two other outlets allow you to load programs into the 1000 or save programs on disk or cassette tape.

Programs are loaded from the cassette recorder (get the cheapest you can find) into the computer, which interprets the electronic signals and stores the information. Right now, all information is saved on cassette tape, but Sinclair has promised to speed things up with a tiny disk drive it developed in England and which Timex will be marketing here before long. Start saving now: The drive will probably cost much more than the computer.

Several peripherals are available to the 1000 owner, including a variety of printers (from those that can only print on 3-inch wide paper—i.e., adding machine tape—to those that can print on regulation 8 x 11-inch paper). Real keyboards can be purchased to replace the keypad, but connecting cables, grafted onto the inside of the machine, are larger than the total computer.

Another tip: an inexpensive improvement that will extend the life of your 1000 is to attach taller feet, such as drawer knobs, to the bottom of the machine to allow for more ventilation. As it is, the machine rests only ⅛ inch above whatever surface it's on.

Software

A number of games are available on cassette tape for the 1000, and more are on the way, provided by both the system's manufacturer and other companies. The software is available in 1K,

Above: Clive Sinclair, who invented the Sinclair ZX-81 as well as the first pocket calculator and digital watch. Below: A typical Timex set-up.

2K or 16K cassettes, depending on the system's RAM ability. The following cassettes, from Timex, all fall into the 16K category:

Grimm's Fairy Trails is a Pac-Man takeoff with six speed variations. By pressing the arrow keys, you control the movements of Prince Billy, who is being pursued by two dwellers, Murph and Drago. Billy gains points by eating dashes and can escape the wrath of the dwellers by touching the Sacred Stone of Ross in the center of the screen. A controller is sorely missed in this game, especially since the arrow keys are on the 5, 6, 7, and 8 keys (respectively, left, down, up, and right) and span only a total of 2⅛ inches. On a typewriter, those keys would cover at least 3½ inches.

Gambler is a combination blackjack and slot machine game, which plays very much like the real things. In blackjack, cards are dealt on a table. The hole card is concealed while the others are clearly displayed. Blackjack shuffles the cards at the beginning of the game, and again when there are only a few cards left. Your winnings, or losses, are displayed on the screen. In the slot machine game, place your bet, watch the letters spin and, if the letters that come up match, a multiple of that bet is added to your score.

Timex's **Backgammon** cassette is great for beginning players. If one player tries to perform an illegal move, the screen prints out an explanation of why it is illegal. Columns are marked with letters, beginning at A on the upper right. It has four levels and a doubling cube.

Mixed Game Bag 1 offers three games: a bingo number generator, Robot Wars, and bowling. Robot Wars is a computerized adaptation of Mastermind, the board game classic. The object here is to guess a four-digit number within 10 tries, through the process of elimination. Fail, and your robot is demolished. The graphics on this are suprisingly good. In bowling, the player presses two keys to control the ball, moving it from left to right.

Other Timex 16K cassettes include Vu-Calc, a financial analysis and budget program; The Stock Option Analyzer; Super Math; Chess; arcade-type games such as Space Raiders and Bombers; and Flight Simulator—all for $15 each. In its 1K library, for $8 each, there's Statistics; Super Program One (which includes Doodles, Invasion from Jupiter and Skittles); Super Program 7 (including Racetrack and Golf); and Super Program 2 (Secret Code, Memory Test, and Metric Conversion).

New York's Soft Sync was the first company to develop computer programs for the 1000. When the system was sold only in Europe, Soft Sync brought some programs to the U.S. for those ordering the system through the mail. Since the 1000's arrival in the U.S., Soft Sync has been adding more programs to its line, becoming the largest independent software producer for Timex. Last January, Soft Sync announced five new 16K programs in its line: Superchess; Nightgunner; Double Feature Adventures (Quest for the Holy Grail and The Elusive Mr. Big); and two computer tutors, Alpha/Vowel Tutor and Math Raiders. In its current 16K line, Soft Sync has Space Commando; Shark's Treasure; Mazogs; Red Alert; Meteorites; Alien Invasion; Graphics Kit; Programmers

(Continued on page 75)

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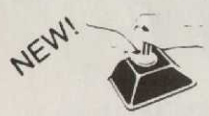

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BOOK BEAT

New York City, This Is A Stick-up

By David Smith

At the core of Wimpy Begelman is the orneriness of a turn-of-the-century anarchist and the calculated wit of a Willie Sutton. Add perhaps a touch of Holden Caulfield. Wimpy lives the life of a loner, operating in a sort of alienated fog, moving quietly through an unemployed existence as he endures subway delays, shoots a game of One Pocket in a Times Square poolroom and listens to his tubercular mother's complaints about the humidifier in their Brooklyn apartment.

Wimpy burns for revenge against the city of New York. A mix-up in a city hospital was responsible for his father's death. Wimpy also has a problem: he needs cash—lots of it—to get his sick mom to a dry climate—Colorado, preferably—as soon as possible.

Wimpy's fortune takes a good turn when he runs into an old college teacher—Robert Wilson, a kindred soul. Wilson too harbors a deep grudge against New York. A computer foul-up caused the gas and electricity in his parents' Bronx apartment to be turned off accidentally, killing them. Wilson, who also needs some scratch so he can boogie off to paradise with a Times Square topless dancer, has a scheme in mind: to steal the Board of Education budget data the city needs in order to apply for a desperately-needed $200 million federal loan, then demand $20 million (directly deposited into a Swiss bank account, thank you) for the return of the information. Without the loan, the city goes bankrupt. Wimpy goes along.

So begins *Apple Crunch* (Avon, $3.95), Frederick Vincent Huber's rollicking, entertaining novel in which we learn from the start that access is power in the computer age. Individuals will continue to fight valiantly against the system, but they won't necessarily need guns or physical courage. Mental agility and—more important—gaining access to a computer will do. The new breed of criminal—the kind making the really big bucks—won't be emptying machine gun fire into rival gangs, bootlegging liquor, or smuggling cocaine across borders. As computer literacy spreads, the new crime kingpin is just as likely to be a young programmer in jeans who has the knack for cracking codes than a cigar-smoking, pinky-ringed mafioso. Let's face it: If Willie Sutton were alive today, he'd be taking night courses in computer programming. These days, that's where the money is.

And no one understands this better

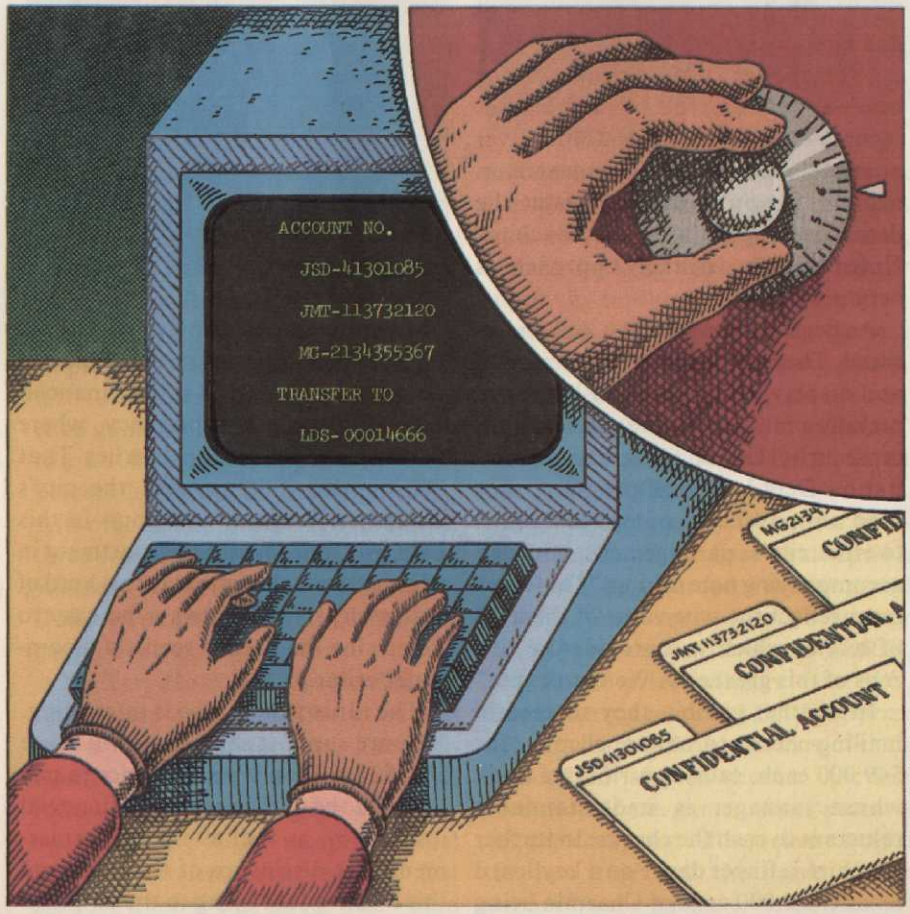


Illustration by Jack Tom

than Huber's Marvin Klein, the cynical, adulterous detective in the city's computer security force, on whose shoulders falls the burden of rescuing New York from the keyboard thiefs, Messrs. Begelman and Wilson. Brooding, sulking, Klein grieves for the world and its apparent indifference to the wave of computer crime about to engulf it. "The problem with computers," he says, "is that when a crime is committed, if it's done right, there are no tracks. Sherlock Holmes can't come in and find heel marks. No safe door has been blown off. Most of the time, nobody even notices anything has happened. Until later. Much later."

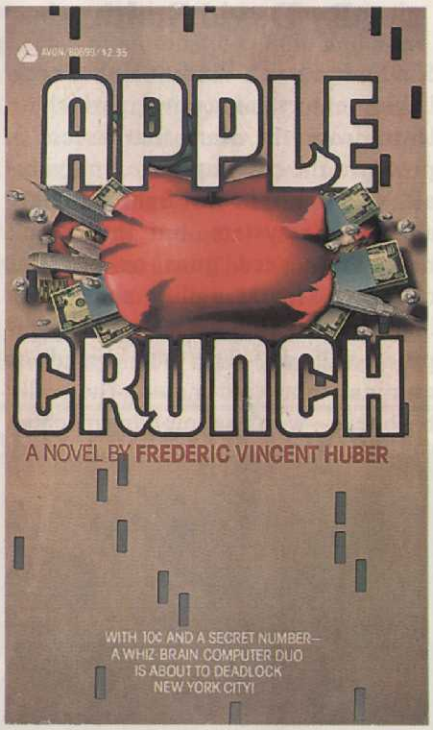
Through Klein we learn just how powerful a vehicle computers can be for a ciminal: "You can try to protect yourself, if you have the money. Protection isn't usually built into the machine. When it is, there's not enough of it. You've got to do it yourself, and you've got to work hard at it. Besides your computer, you've got to protect your computer programs and your data. You see, there are about three million computer people in this country, and if one percent of them are even slightly dishonest, that's thirty thousand people who have at their fingertips the ability to do a great deal of damage.

"Somebody asked me once what the best way would be to make a computer secure. First is the Long John Silver approach: Shoot the programmer. Second, if you're worried about the data, don't put it in the machine. Unfortunately, neither approach is very practical."

As Begelman and Wilson well understand. They are clever in their mischief and display a keen sense of humor in making a mockery of the city's computer security. Gaining access to the Sanitation Dept.'s payroll program, they send out paychecks of two cents each to the city's garbagemen, with an accompanying note stating, "These new rates reflect the true value of the level of service which you provide the citizens of this great city. We thank you."

In another gambit, they succeed in mailing checks to welfare clients—for $49,000 each, causing a riot in a bank whose manager is understandably reluctant to cash the checks. In further mischief, a finger dance on a keyboard leads to 15,000 rolls of Charmin being sent to Queens County Municipal Hospital, instead of the regular allotment of 1,500; and then, a little tampering with the city's traffic computer—which controls the Big Apple's traffic light system—creates gridlock the size of which New York has never seen before.

The crime duo is able to tap into these computers through various means. Wimpy, for example, plays a credible repairman, getting inside the Municipal Hospital Data Center with fake ID and by telling a denizen of the center, "I'm here to do a PM on your tape drives." By seducing a female city employee, Wilson obtains the crucial



phone number that can link his Digital Equipment Corporation 408 minicomputer to the IBM 3033 at the Financial Information Systems Agency, where the Board of Education data lies. That Wilson can link up with the city's computer from any location—in this case, an Upper West Side apartment in Manhattan—shows that in this kind of endeavor, it won't always be easy to determine the precise scene of a computer crime.

The ransom note also is interesting. "We are sure," it says, "you will agree that $20 million is a small price to pay to avoid the consequences of financial insolvency, as well as the embarrassment that disclosure of the details of this event would bring to the administration. We assume you would prefer not to experience the kind of news coverage that followed our efforts in the Departments of Sanitation, Social Services, Transportation, and Hospitals." The note rings true. Victims of computer crime are often too embarrassed to release details of the crime or even seek proper enforcement.

As Thomas Whiteside wrote in *Computer Capers,* an authoritative study of computer crime that originally appeared in *The New Yorker,* "In instance after instance, corporations whose assets have been plundered—whose computer operations have been left shattered by wiped-out memory functions or have been manipulated to churn out fictitious accounting data or to print large checks to the holders of dummy accounts—have preferred to suffer in silence rather than to have the horrid facts about the frailty of their miracle processing systems come to public attention."

There is one thinking that doesn't ring true, though. I find it hard to believe that the city would not at least find the time to make a copy of the precious budget data—either a "hard" (paper) or electronic copy. But this is nitpicking. *Apple Crunch* is a clever book with more than a few surprises. Huber tells a good story. Wimpy Begelman and Robert Wilson need money but they also believe in what they're doing. They believe that computer crime is morally justifiable, a way of getting back at computers and the people who run them.

In the real world, this is not an uncommon notion.

Whiteside put it this way: "The impersonality of the computer and the fact that it symbolizes for so many a system of uncaring power tend not only to incite efforts to strike back at the machine but also to provide certain people with a set of convenient rationalizations for engaging in fraud or embezzlement. The computer lends an ideological cloak for the carrying out of criminal acts."

If this is what we have to look forward to in the computer age, we'll at the very least need a book like *Apple Crunch* for comic relief. I can only hope that, for the sake of the Big Apple, life doesn't imitate art in this case. But somehow I think it eventually will. ▲

Hard Sell

(Continued from page 72)

Tool Kit; and Biorhythms. Available in 2K is Space Raid/T-1S Destroyer and a 2K Games Pack, which includes Copter Patrol, Killer Whale, Monster Masher, and Dragon Slayer. Comter Software Associates, of Randolph, Mass., also has a line of Timex software, as does New York's Spectra Video.

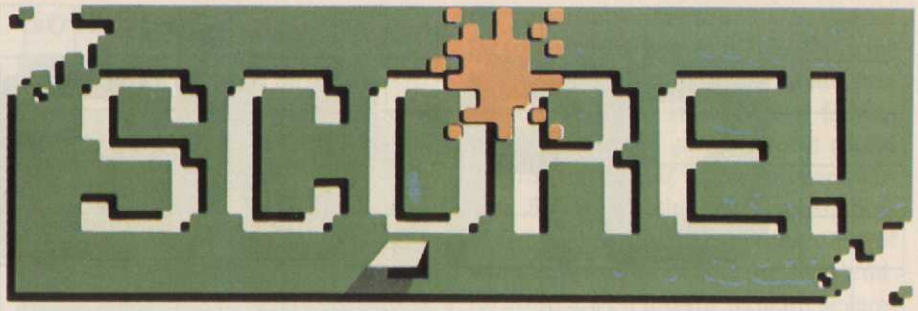
Publications

The instruction book that comes with the 1000 is fairly complete and is a good way to learn what the system can do and how to use it. For those who want to go further, *Sync*, a magazine catering to the Sinclair and Timex-Sinclair owner, is published six times a year by Creative Computing. Creative Computing Press has a line of books about the system: *The ZX-81 Companion, Getting Acquainted With Your ZX-81, The Gateway Guide to the ZX-81* and *Computers for Kids.*

Conclusion

Someone is said to have once remarked that the 1000 was the machine "no one should own, but everyone will buy," or words to that effect. I look at it this way: If you are broke and are interested in learning about programming, the machine might suffice. If you can afford it, step up. If you want to play games, get something else with color and sound capability. You'll probably move on to something better very soon anyway, so why not save some money and start with a better machine? For one thing, you'll have a tough time typing on the 1000. Entering programs of any length on this miniscule keyboard can send you into a tantrum, not to mention the resulting backache and eyestrain. Knowing how to type is no advantage on this hunt-and-peck baby, unless you buy one of the add-on keyboards for at least $75.

Timex has just announced the 2000, a color computer with 16K of memory for $149.95: exactly the suggested retail for the black-and-white 1000 with the 16K memory attachment. A 48K version will cost only $199.95 and will include sound effects and actual keys. It might be worth your while to save up and go for this one instead. ▲



That's Incredible!

The residents of Ottumwa, Iowa, organized a parade; the town mayor presented trophies; President Reagan called to say he wouldn't be able to attend the proceedings, but wished everyone his best. No, a foreign dignitary wasn't passing through Ottumwa on the weekend of Jan. 8-9; just 19 of the top game players in America.

Leave it to the irrepressible Walter Day Jr., to cook up this script: For two days, video jockeys from as far north as Alaska and as far south as Florida, from New York to California, would compete in the first-ever Video Game Olympics. A *That's Incredible* film crew would stop by Day's Twin Galaxies arcade, where the competition was to take place (the arcade, incidentally, is also the home of Day's National Scoreboard—see page 82), and the winners would move on to Los Angeles for a nationally-televised finals.

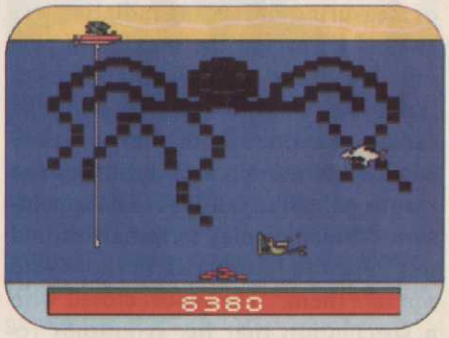
In the warm-ups alone, Matthew Brass, of Helena, Mont., set a new record for Donkey Kong, Jr. From 9 a.m. till 6 p.m., each day the players competed on five games—Joust, Frogger, Millipede, Donkey Kong, Jr., and Super Pac-Man. Final scores were fed into computers (one designated for each game) with the highest score getting a 100 percent rating and the other percentiles based on that high score. After the last numbers were tabulated, three finalists were announced: Todd Walker, Milipetas, Calif.; Ben Gold, Dallas, Tex.; and Darren Olson, Calgary, Alberta.

Walker, Gold and Olson vied for top honors on ABC's *That's Incredible!* at the end of January. The decision to send a crew to Ottumwa and follow it up in Los Angeles was influenced by the positive reception a Ms. Pac-Man tournament received last August when it was aired. The Video Olympics will be broadcast sometime in March or April.

* * *

THE NAME GAME: For $10,000, can you "Name this Game?" No, this isn't another TV-game show come-on—it's a promotional challenge from software maker U.S. Games.

In this contest, which began Feb. 1, U.S. Games is asking consumers to take a shot at titling its new underwater shooting game. In the game, a



diver protects a cache of treasure from a circling shark and grabby octopus with his spear gun. At the same time, he has to keep replenishing his air supply by hooking up with an above-water pal. One scene from the game is depicted in the accompanying photo. Mail all entries—postmarked no later than April 30—to "Name This Game," U.S. Games, 1515 Wyatt Drive, Santa Clara, Calif. 95054.

The winning entry (the most creative name) and the first name drawn will both be awarded $10,000 grand prizes. One second-prize winner ($3,500), one third-prize winner ($1,500), 100 fourth-prize winners (six U.S. Games cartridges) and 1,000 fifth-prize winners (one U.S. Games cart of their choice) will also be chosen. One last incentive: If the game proves successful, the company will re-release it with the new title and the name of the winner on the package. —*Sue Adamo*

DR. VIDEO

Are Video Games a Radiation Hazard?

By Stephen Balter, Ph.D

A few years ago, some computer video terminal operators complained about a great number of medical symptoms including fatigue and eyestrain. These individuals thought that their health was being influenced by the effects of one or more types of radiation coming from their video terminals. The United States Public Health Service (USPHS), a branch of the government which has the responsibility of measuring and setting radiation levels and enforcing the maximum permissible limits for different kinds of radiation, measured the amounts of radiation emitted from a large variety of video terminals, and published the results of its study in 1981. The conclusion: "Video display terminals should not pose a radiation risk to those who operate them." The report closed with a speculation that the symptoms reported by the operators might be due to other factors including posture, vision and environment.

Video game players may also wonder whether or not home or arcade video games pose a real radiation hazard. Let's review the types of radiation emitted from games and the steps that have been taken to assure one's safety.

An individual's exposure to man-made radiation may be compared to his exposure to natural radiation. For example, ultraviolet radiation from the sun, radiowaves and microwaves from lightning storms or X-rays from cosmic radiation. The intensity of each of these natural radiations differs according to geographic location and the time of day. In most cases, suntanning excepted, people do not concern themselves with natural background radiation intensities or intensity variations.

The main types of radiation which can come from video games are various kinds of sound waves, radio waves, light waves, light and X-rays. Of all these radiations, only the presence of too much light or sound is obvious to the player. Any needed reduction of screen brightness or sound volume can be performed by the arcade operator or game owner.

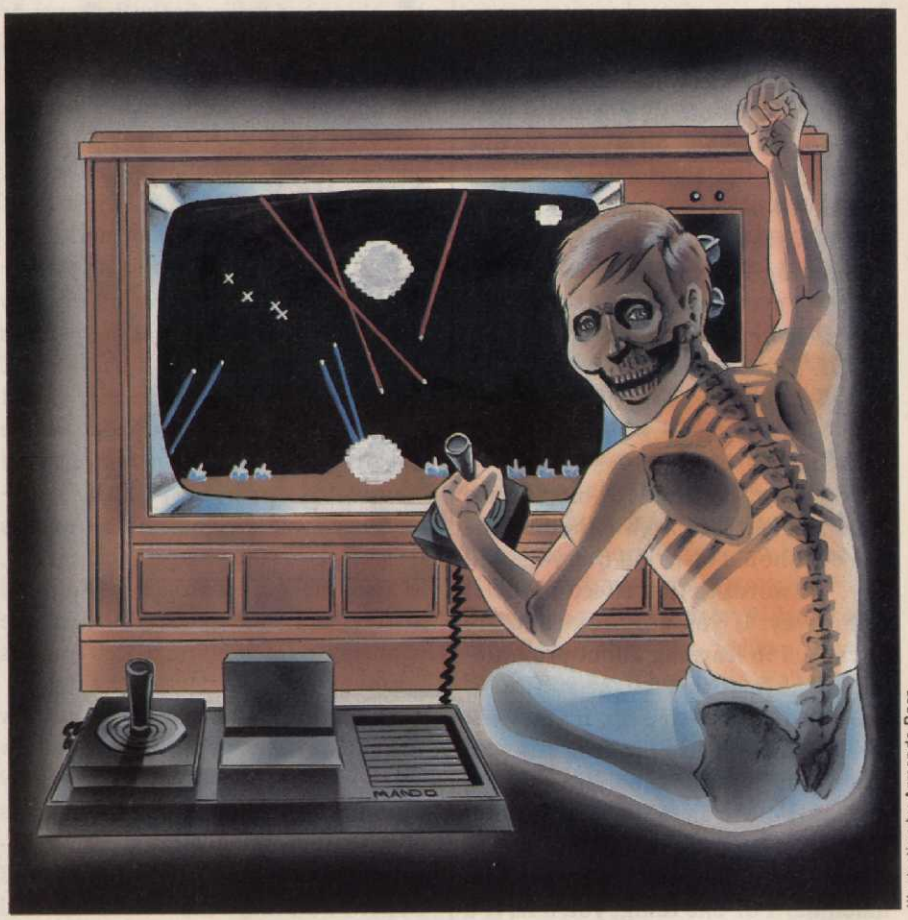


Illustration by Armando Baez

The USPHS measures and sets the levels of radiation, including those kinds which cannot be directly seen, heard or felt, such as ultrasound (from mechanical vibration of parts of the high-voltage oscillator), ultraviolet light and X-rays (from the video tube face), radio waves (from computer components). The presence and intensity of these types of radiation can only be determined by the use of instruments.

The emission of radiofrequency interference from devices is monitored and regulated by the Federal Communication Commission (FCC). The potential for interference is the reason why the use of electronics is restricted on board aircraft. At home, interference can be reduced or eliminated by changing the relative positions of the radio and the microcomputer or video game.

Concern for X-ray emission from color television sets emerged in the mid-to-late '60s when a small number

of early color sets was found to emit an excess amount of X-rays. This emission of radiation was mainly attributable to improper repairs or to adjustments made in an effort to soup-up the color. As a result of this discovery, Congress enacted the Radiation Control for Health and Safety Act of 1968 (Public Law 90-602). All television receivers and video monitors sold in the United States and manufactured after January 15, 1970, come under the provisions of this law and are labelled on the back of the set as complying with the safety standards.

For all practical purposes, television receivers and video monitors, including those used with video games, do not emit X-rays. The technical standard is that the maximum emission must be less than 0.5 milliRoentgens per hour at a distance of two inches from the surface of the set. The actual maximum emission from most color sets, under normal operating conditions, is less than 0.1 milliRoentgens per hour at the two-inch distance. The amount of radiation emitted from black-and-white sets is even less. Also, radiation levels at normal viewing distances are much lower than those measured next to the set. At these levels, an individual's exposure to X-rays and similar kinds of radiation is influenced more by geographic differences in natural background radiation than by video game usage. A typical player living at sea level (where the natural background level is 100mR per year), could use his machine for three hours every day and still receive less total radiation than a non-player living in the Rocky Mountains (where the natural background level is 200mR per year).

With the exception of a few pre-1970 color television sets, radiation does not appear to present a real hazard to video game players. The player should not attempt to "improve" his video monitor if this involves the removal of radiation-limiting components or adjustment of internal controls. Other environmental factors may be improved, however, if the player would like to reduce his physical discomfort while playing the game. ▲

Stephen Balter is an Adjunct Associate Professor of Radiology (Physics) at Cornell University Medical College in New York City.

Soft Spot

(Continued from page 66)

Go to the Temple of Ra to find the answer to Imagic's Riddle of the Sphinx.

in this game—the thirstier you get, the slower you move). And you will have to use *some* eye/hand ability to deal with the thieves, scorpions, and evil gods who get in your way.

When you come across a nomad trader, beware. If you don't have too many objects, he'll usually give you something for free. But if you're well stocked he may take something away, and you don't want that to happen because you never know which objects you'll need to save your life later on, and which are useless. The various temples have important gifts for you, but only if you present the correct gift to the temple god. You might have to trade a certain key for an ankh to give you passage as you near the Temple of Ra. Isis, for example, will only accept the crown.

Essentially, Riddle of the Sphinx is a logic and memory puzzle. For example, you have to crack a code of which objects give you which powers over your universe and use them accordingly. Fast, accurate shooting will not win this game for you—thinking will.

Utopia (Mattel/Intellivision) puts you in charge of an island republic. You're entirely responsible for the health, education, and welfare of its inhabitants. The idea, in a nutshell, is to keep your people fat and happy.

You start the game with a certain number of gold bars and can earn more depending on how wisely you invest. Buying and strategically placing forts, factories, schools, hospitals, and housing projects each has its own special effect on the population's ability to earn you more gold bars each round. But since you can't buy them all, at least not at first, you have to figure out which combination is best for your island. There are two random factors in this game: tropical storms that bring rain and pirate boats that patrol the seas. Hint: buy a fishing boat early in the game; once a round begins it's the only thing you can control. By moving the boat over schools of fish you earn gold bars regardless of what happens elsewhere on the island. Of course, you'll want to plant several acres of crops: they are inexpenive and if the rain happens to fall on them, everyone's happy.

In the two-player game only the purchase of rebel soldiers can have an effect on the other player. Still, Utopia is as good with two players as it is solitaire. There isn't much in the way of sound effects other than the rainstorms, but the graphics are detailed

Buy a fishing boat first in Mattel's Utopia and everything will be alright.

enough to keep you glued to the screen. Utopia is one of the best non-action games for Intellivision.

Fireworld (Atari/VCS) is the second of a four-cart series collectively called Swordquest. Each of the four games contains a puzzle that you must figure out based on clues found both within the game and in a DC comic book that comes with it. A $25,000 prize has been offered to the first player who can solve each puzzle, and a $50,000 prize to the one who puts all four together to solve the larger puzzle.

Because the game involves a contest and because half the fun of the Swordquest games lies in discovery (at first, you just don't even know what you're looking for), I'm not going to say much other than that Fireworld is fun. There are 10 rooms, arranged with pathways and doorways just like in Atari's old Adventure cartridge. There are also 10 treasure rooms where you can pick up objects that will help you solve the puzzle or move from room

(Continued on page 81)

Jim Levy

(Continued from page 25)

So it makes it more of a horse race on the hardware side, which is good for the industry because competition is good for overall growth. As for the software side, it just gives us enormous expansion of our horizons in terms of where we can work and what we can do. And that's very exciting because we know that if we produce something for Intellivision and there's an Intellivision adapter on ColecoVision and there's an Intellivision adapter on this hardware system and that hardware system, then that cartridge has more universal appeal than just being produced for Intellivision.

VG: Do you have any other predictions as to where the industry will be in five years?

Levy: We're talking about over half of all American households having either a game system or a computer. By that time, the computer will have grown to a substantial part of the total base. I'm not sure it's fair to say that computers will be equal to game systems at that point because the game systems have such a big lead, but it will be close. In round numbers, that's 45 million households.

On the software side of the business, you're looking at a market that's going to double or triple again from '82 to '86 or '87. It will be larger than the motion picture and record businesses are today in terms of the retail dollar value of software sold. You'll have lots of competitors. I don't know whether it'll be hundreds or dozens, but it'll be lots.

VG: Of those hundreds or dozens, how many can realistically expect to share a significant piece of the software pie?

Levy: I'd say the top six or seven companies are going to control 75 to 85 percent of the market—just like they do in book, record and motion picture businesses. No difference here. The leading companies are going to be the companies with the best talent, the best organized distribution systems, the most effective marketing, and the best management teams. Obviously, all of these companies are going to have plenty of money behind them. That's almost a given.

Photo by Victoria Rouse

"It's very easy to take the video game and treat it as some sort of unique phenomenon, but it isn't."

Now, on that basis, you could look at the range of competitors in the market today. The top five—Activision, Atari, Mattel, Parker Brothers and Coleco—on paper would have what it takes to be among the top six or seven companies five years from now. Things can change, however. There can be new additions to the competitive world who bring new creative ideas, new talent and fresh blood to the business. But I think the five of us who are sitting up there as the leaders of the industry right now will be very difficult to dislodge fundamentally in a short time. It will take a long time and we will have to do it to ourselves to a certain extent.

VG: I can't help but note that you've excluded Imagic from this Fantastic Five.

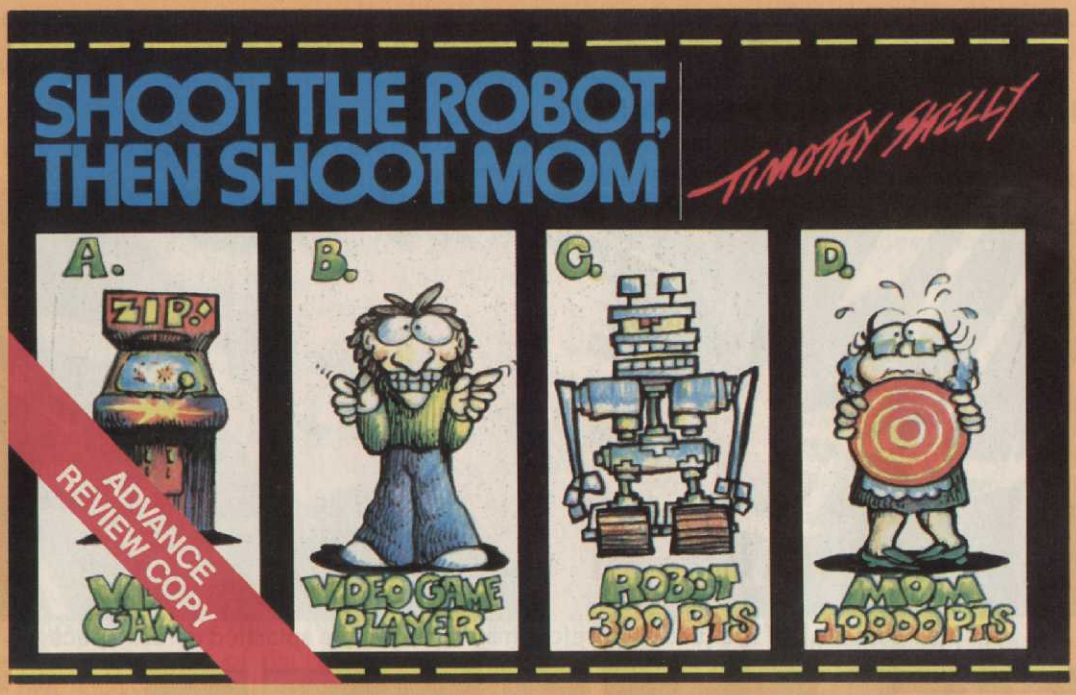
Levy: In the marketplace today in terms of sales and product, there is a very clear distance between No. 5 and No. 6. I'm not saying that Imagic doesn't have a lot of potential, but when you go from, say, Parker and Coleco to Imagic there's a fairly substantial shift. The top five that I have listed have between 90 and 95 percent of the total market. And the top three—Atari, Activision and Mattel—have 75 percent. I think there are clearly five companies who have sort of separated themselves from the next group of companies, and Imagic would certainly be one of the strongest—in terms of their six-to-nine month performance—one of the strongest of the next group of companies. This group includes CBS, Fox, U.S. Games and so forth.

VG: All this talk of growth is wonderful. Yet there are a few skeptics left out there who continue to argue that video games is just another of our obsessions that will pass in time. Something else will come along—some form of play that's not a video game—and suddenly people will forget about video games. How do you respond to this?

Levy: Well, those things don't happen overnight. It's taken 10 years for the video game to get to where it is now. It's got another five to 10 years of solid growth in front of it. The record business took 15 or 20 or 25 years to develop before it became a mature industry.

VG: In comparison to the record industry's growth, the video game industry *has* happened overnight.

Levy: It's true that the video game perhaps is going to become more important faster, but we're still only in 18 percent of American households after 10 years. It's very easy to take the video game and treat it as some sort of unique phenomenon, but it really isn't. I guess we always tend to think that whatever it is that we're involved in is in some way more unique than what has ever happened before in the history of mankind. As a phenomenon, it bears some similarity to other phenomena in the past. But I just don't think that this is such an unusual thing. ▲



© 1983 by Timothy Skelly
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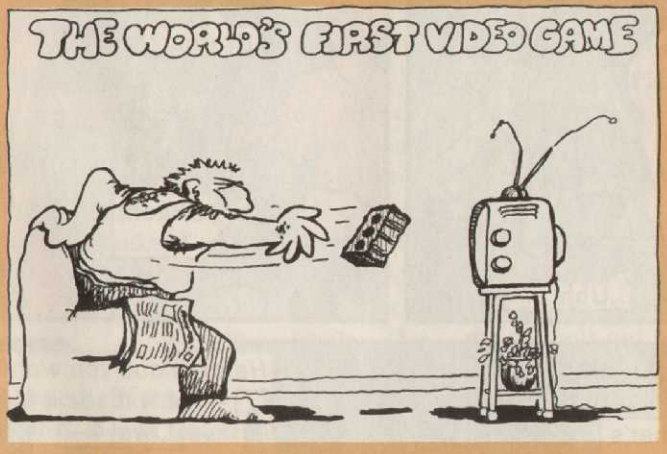
Tim Skelly. Remember him? We devoted five pages to his life and times back in the October *VG*. In case you've forgotten, he's a coin-op game designer with an impressive list of hits, including Rip-Off and Armor Attack, and non-hits, including Reactor and Sundance.

When we last talked to Tim he was assembling a book of video game cartoons, as well as working on his latest game for Gottlieb, titled Insector. Recently, an "Advance Review Copy" of *Shoot the Robot, Then Shoot Mom* (Contemporary Books, 180 N. Michigan Ave., Chicago, Ill.. 60601) arrived in the mails. Tim invited us to print whatever we'd like from the book, which consists of 73 different gags covering 112 pages. (The price: $4.95.)

By the way, the book is dedicated to Tim's Mom: "A Truly Wonderful Person with a Great Sense of Humor (Right, Mom?)"



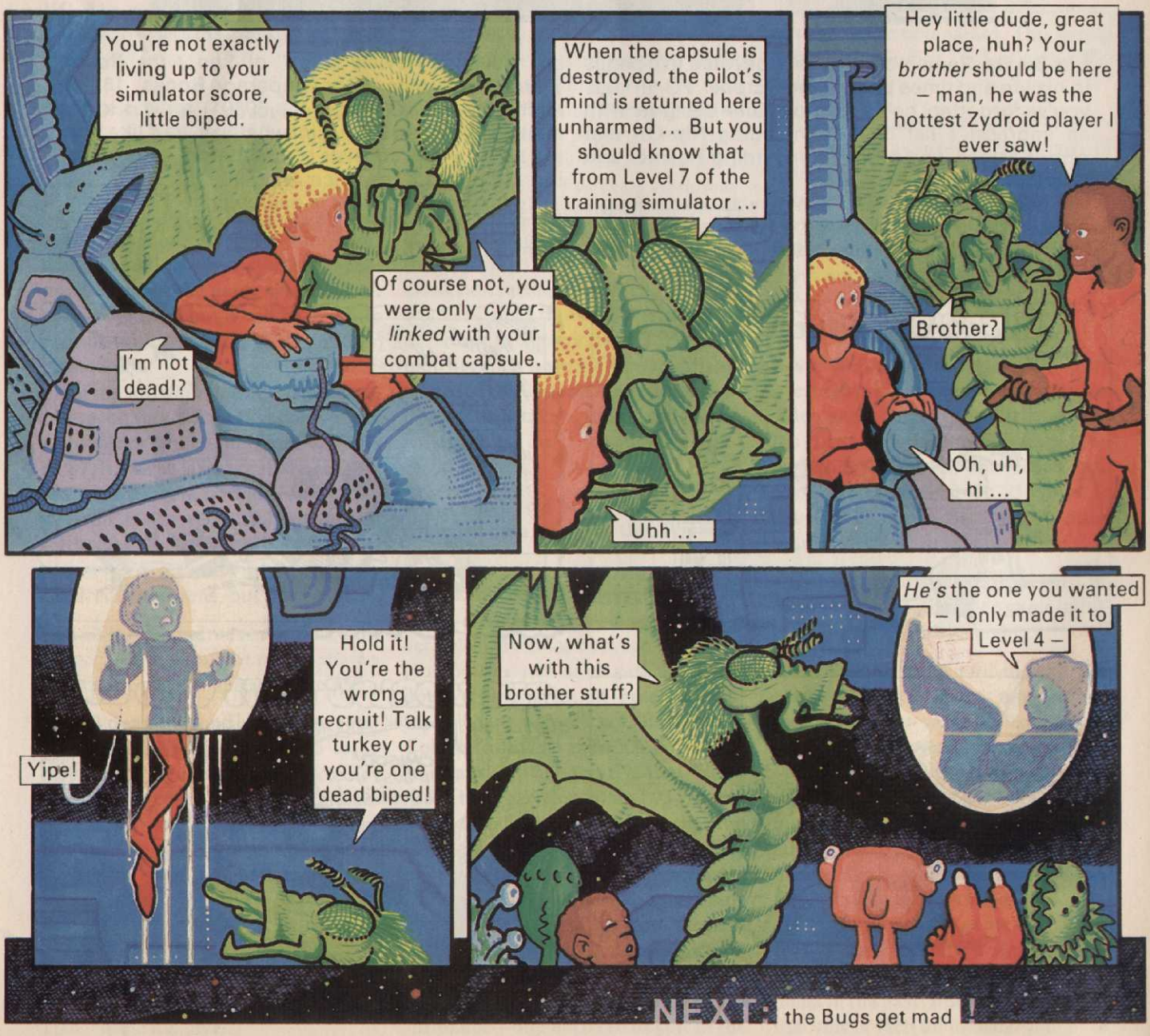
The Zydroid Legion

Words: Matt Howarth / Lou Stathis
Visuals: Matt Howarth
© 1983 Howarth / Stathis
Mach 12.82

Chapter 4: **A SHEEP IN WOLF'S CLOTHING**

Synopsis: Unknowingly, the Bugs have recruited the *wrong brother* and sent the defenseless kid into the thick of galactic warfare ...

... Where he lasts all of four seconds before his molecules are splashed across space.



Soft Spot

(Continued from page 77)

to room. There are 16 treasures in all, but you can only carry six at a time, so you have to leave others in strategic places for later use. To enter each treasure room, you must perform an action-game sequence, like catching falling objects or dodging deadly ones.

And then there are the clues. By leaving the appropriate object in the right place in the right room, a clue will be revealed to you. Its meaning may or may not be obvious, so it's best to write them down and experiment later.

Graphically, Fireworld is somewhere between impressive and annoying. Moving from one room to another through the doorways is a nice effect, but, for the most part, most of the screens have that blocky VCS look to them. Ah, but the gameplay is addicting, which is what really counts. Bring on Waterworld! ▲

Double Speak

(Continued from page 8)

problems, as you obviously found out, and was unable to release the book. Rest assured, however, that that was not the last you've heard of Roger Dionne. —*Ed.*

Thanks

I very much enjoyed your interview with Imagic's Bill Grubb and Dennis Koble (Jan. *VG*). It was interesting, informative and enjoyable. Also the article on Donkey Kong was one of the best I've seen yet. Keep up the good work.

Ken Ranta
Thunder Bay, Ont.

Book-Man

I enjoy your magazine, especially the Book Beat section. I would like some information on where I can find *How to Win Every Game in the Galaxy*. I'm also interested in Donkey Kong and Donkey Kong, Jr. I would like some pointers on where to find a book on these two games. Are there any how-to books on them?

Peter Baltas
Pensacola, Fla.

The Complete Guide to Conquering Video Games—How to Win Every Game in the Galaxy *(by Jeff Rovin) is published by Collier Books. For info., write: MacMillan Publishing, 866 Third Ave., NY, NY 10022. Pocket has a* How to Win at Donkey Kong *bookette, courtesy of the editors of* Consumer Guide. *Write: Simon & Schuster, 1230 Ave. of the Americas, NY, NY 10020. While we're at it, did you ever hear of* Video Invaders, *an Arco Publishing book by yours truly?—Ed.*

Excuuuse Us!

I have the first four issues of *VIDEO GAMES* and I wish to inform you that I won't be purchasing any further issues of this magazine. I would like to present the reasons why: 1) John Holmstrom and Peter Bagge, who draw in a psychotic manner and imply that *all* video gamers are maniacs and psychos. I can draw better than this. Zydroid Legion is rather psychotic. 2) The *failure* of *VIDEO GAMES* to lay off the big timers and to do a boost job for the lesser known video games, such as Kangaroo, Pooyan, etc., which deserve illustrated reviews, if not whole articles. Since *VG* has obviously said *all* it wishes to say about Kangaroo, I have read all the issues I wish to read. 3) Most video games shellacked me, like Space Panic and Defender. I tried them and "beginner's luck" obviously was quick to abandon me in Crazy Climber, Ms. Pac-Man, Tutankham, Pooyan, Burger Time, etc. On Dig-Dug I got to level four at second try; I'm not giving my luck any chance to desert me. Same for Kangaroo and Robby Roto. I find your magazine—and others—tearing down my reserve which I am reestablishing, and causing me to shell out quarters to try these games instead of watching pros (hard to tell from shmoes).

Paul R. Wilson
Bergenfield, N.J.

I'm really sorry that you feel this way. Could I possibly interest you in a free subscription?—Ed.

Rip-Off Artists

Your review of Starpath's Supercharger (Feb. issue) was good, but why didn't you mention what *really* makes it irresistable? You see, we've been paying upwards of $30 for video games, some good, some not so good. When someone offers us an accessory that gives us games that have 48 times as much screen display memory as Atari VCS cartridges and multiple-load games that increase the complexity of even a supercharged game, and *then* asks only $14.95 per game . . . well! Me being so used to regular game prices, I buy a Starpath game and I feel like I'm ripping somebody off.

Nicholas & Mary D'Orazio
La Puente, Calif.

Impressed!

I recently picked up a copy of *Video Games* out of curiousity (having purchased an Atari VCS a couple of months ago). I am impressed! It is a rare magazine in which I find all of the articles interesting, but you have done it.

In Future Shock Talk, I found the concept of an interactive movie particularly interesting. I would like to suggest that this sort of thing could be done on a small scale in an arcade game by setting up a game with two screens, one for each of two players, with each player having a pilots-eye view of space, including the other player's ship. A game like that might even get *me* into the arcades (So far, I am strictly an armchair gamer).

I saw myself in the article "Escape from the Planet of the Microzealot". As a dyed in the wool "microzealot" myself, I was very surprised to learn that the vast majority of people couldn't care less about knowing how to operate a computer. I get great satisfaction out of programming mine (in machine language, yet!).

Soft Spot was probably part of the magazine I appreciated most. With all the games available (I have 15 cartridges already), it is essential to be able to see what the companies have to offer so that one can decide which cartridges to get. I enjoy Pac-Man and certainly do not consider it a "turkey," but that may be because I have never played the arcade version.

Michael A. Zachary
Phoenix, AZ

Quiz Answers

(Continued from page 35)

1) d; 2) c; 3) c; 4) d; 5) c; 6) c; 7) b; 8) a; 9) c; 10) e; 11) b; 12) b; 13) b; 14) d; 15) d; 16) a; 17) c ; 18) e; 19) d; 20) d; 21) b; 22) a—5; b—3; c—6; d—7; e—4; f—2; g—1. 23) b; 24) d; 25) c; 26) c; 27) d; 28) d; 29) b; 30) d.

STATS

The Top 10 Home Games

Jan. 22	Jan. 8	Weeks on Chart	
1	1	18	Pitfall (Activision)
2	2	20	Donkey Kong (Coleco)
3	3	20	Frogger (Parker Brothers)
4	6	20	Pac-Man (Atari)
5	9	20	Demon Attack (Imagic)
6	8	20	Berzerk (Atari)
7	-	1	River Raid (Activision)
8	14	3	Zaxxon (Coleco)
9	4	8	E.T. (Atari)
10	-	1	Vanguard (Atari)

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These are the best-selling home video games compiled from outlets by the Billboard research department.

The Top 15 Arcade Games

February 15, 1983	Number of Plays
*1. Time Pilot (Centuri)	1144
2. Joust (Williams)	1013
*3. Front Line (Taito)	985
*4. Q*bert (Gottlieb)	978
5. Moon Patrol (Williams)	892
*6. Millipede (Atari)	866
7. Jungle Hunt (Taito)	860
*8. Super Pac-Man (Bally/Midway)	831
*9. Sub-Roc 3-D (Sega)	809
10. Ms. Pac-Man (Bally/Midway)	792
*11. Satan's Hollow (Bally/Midway)	777
*12. Burger Time (Data East/Bally)	773
13. Donkey Kong Jr. (Nintendo)	765
14. Galaga (Bally/Midway)	750
*15. Pengo (Sega)	733

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These are the top earning arcade games according to a poll of operators. Those with asterisks indicate operator responses were between 25-50 percent. The number of plays is a national average per machine per week.

High Scorers

Astro Blaster	299,100	Gus Pappas, Napa, Calif.
Berzerk	119,340	Joel West, Kirksville, Mo.
Bosconian	1,345,710	Henry Szarmach, Norridge, Ill.
Centipede	15,207,353	Darren Olson, Calgary, Alberta, Can.
Dig-Dug	3,462,760	Brian Doyle, Santee, Calif.
Donkey Kong Jr.	949,200	Matthew Brass, Ottumwa, Ia.
Frenzy	4,737,820	Rik Kelly, Kenosha, Wisc.
Galaga (level D)	12,753,570	Mike Lynn, Durham, N.C.
Gorf (six men)	704,590	John Chandler, Hobbs, N.M.
Gravitar	4,722,200	Raymond Mueller, Boulder, Col.
Joust (level 5, 20,000 bonus, new chip)	1,553,600	Joe Malasarte, Ottumwa, Ia.
Kangaroo	754,400	Sam Middleton, Panama City, Fla.
Millipede	785,827	Eric Ginner, Mountain View, Calif.
Missile Command	64,696,720	Jeff Stueve, Dayton, Oh.
Moon Patrol	577,480	Eric Ginner, Mountain View, Calif.
Ms. Pac-Man	286,410	Mike Lepkosky, Houston, Tex.
Pengo (4 men)	369,450	Mark Robichek, Durban, South Africa
Q*bert	3,007,035	Richard Wilson, Woodbridge, Va.
Rally X	238,910	Joel West, Shelby, N.C.
Robotron	202,457,650	Mike Zack, West Bloomfield, Mich.
Satan's Hollow	3,749,445	Michael Ward, Madison, Wis.
Solar Fox	832,940	Lee Whitney, Las Vegas, Nev.
Stargate	70,283,000	Oscar Iglesias, Concord, Calif.
Super Cobra	198,470	Matt Brass, Helena, Mont.
Tempest	4,706,540	David Plumer, Regina, Saska., Can.
Tron	4,036,171	Rick Maldanado, Westland, Mich.
Tunnel Hunt	732,910	Mark Robichek, Mountain View, Calif.
Zaxxon	2,138,650	Eric Burch, N. Palm Beach, Fla.

Our thanks to Walter Day, Jr. for providing us with these latest scores. Locations given are where scores were recorded.

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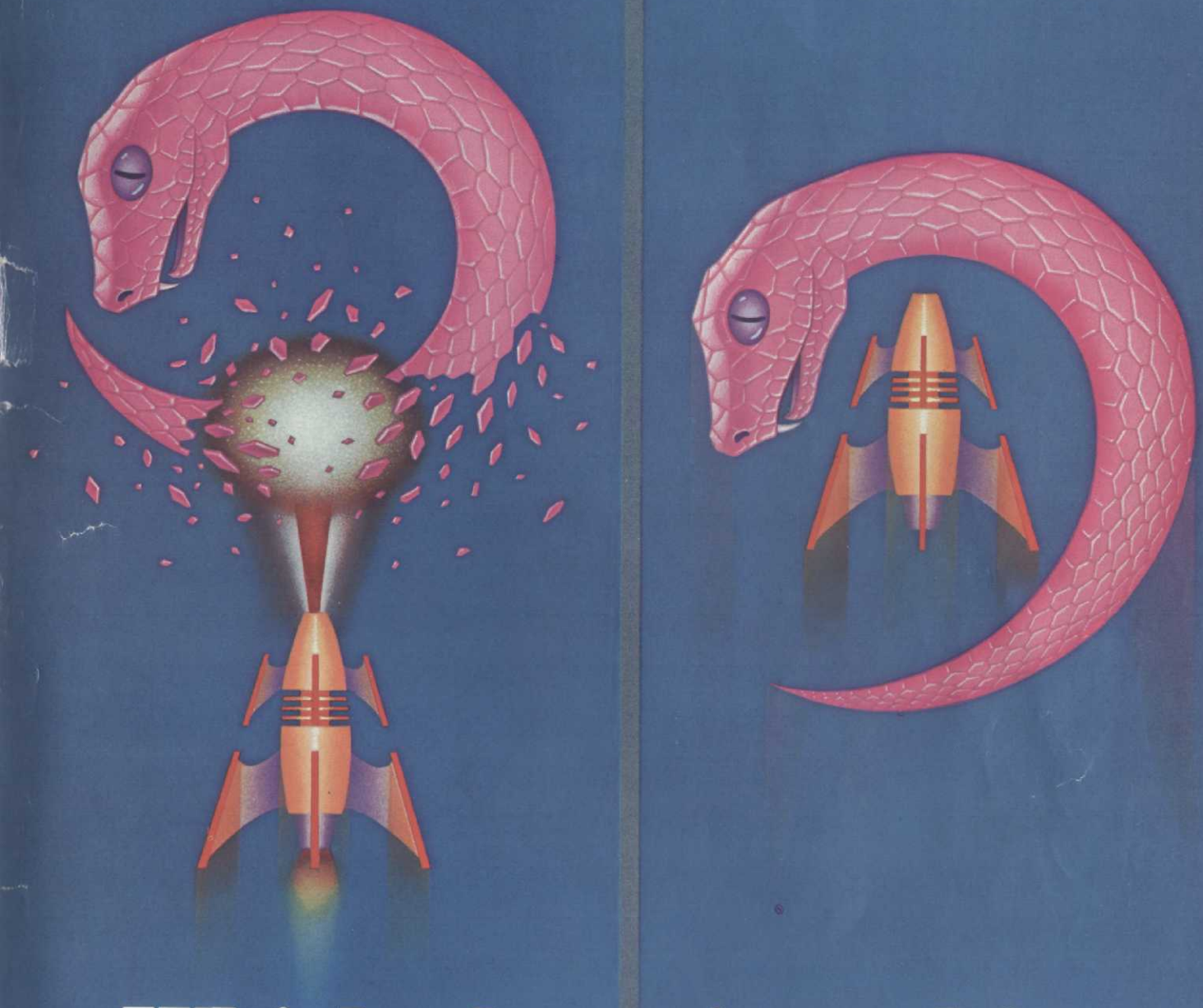


Which player is making a terrible mistake?

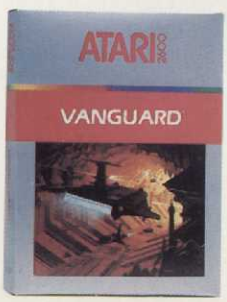
Time's up. Here comes Vanguard* from Atari®.

Vanguard is here with everything it has in the arcade. And it's only from Atari.

There are six dangerous tunnel zones. Lasers that fire in four directions. Map displays. Energy Pods. And, of course, Gond in the Mystery City.

Run out of lives and the game's not over. Continue, but only after you've forfeited your points.

And points can be hard to come by. Which may be the most important reason to find out which player in the example pictured above is making the mistake. The player on the left has destroyed a Kemlus snake in Rainbow Zone Three for 100 points. But the player on the right didn't make that mistake. He's docked with a Kemlus snake and is racking up over 1000 points.



So don't leave Vanguard in the store. It would be the biggest mistake of all.

ATARI®

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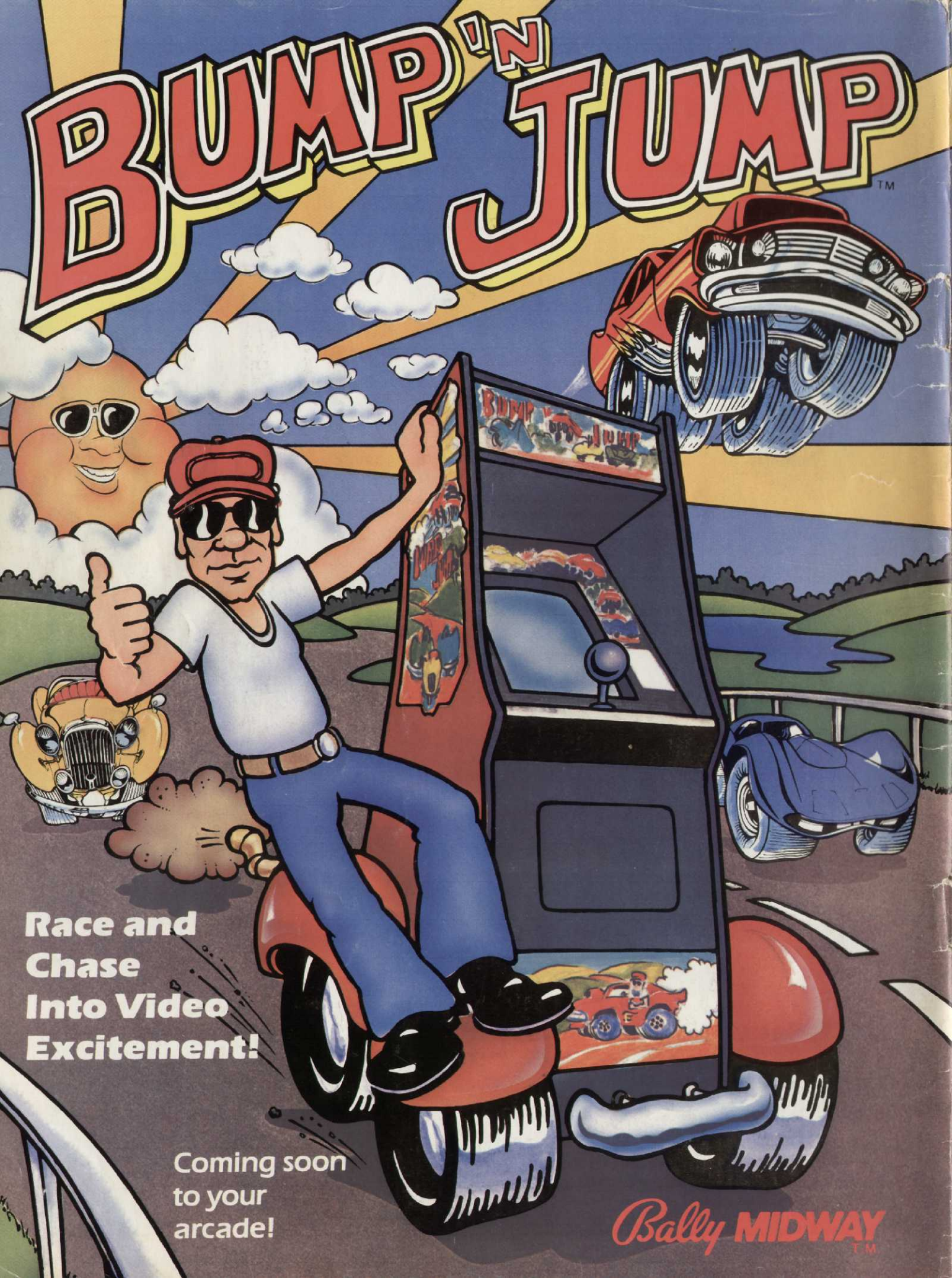
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